

# **INDEPENDENT ORBITER ASSESSMENT**

## **ASSESSMENT OF THE CREW EQUIPMENT SUBSYSTEM**

**12 FEBRUARY 1988**



MCDONNELL DOUGLAS ASTRONAUTICS COMPANY  
HOUSTON DIVISION

SPACE TRANSPORTATION SYSTEM ENGINEERING AND OPERATIONS SUPPORT

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INDEPENDENT ORBITER ASSESSMENT  
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Independent Orbiter Assessment  
Assessment of the Crew Equipment FMEA/CIL

## 1.0 EXECUTIVE SUMMARY

The McDonnell Douglas Astronautics Company (MDAC) was selected in June 1986 to perform an Independent Orbiter Assessment (IOA) of the Failure Modes and Effects Analysis (FMEA) and Critical Items List (CIL). Direction was given by the STS Orbiter and GFE Projects Office to perform the hardware analysis using the instructions and ground rules defined in NSTS 22206, Instructions for Preparation of FMEA and CIL, 3 November 1987, Change No. 4.

The IOA effort first completed an analysis of the Crew Equipment hardware, generating draft failure modes and potential critical items. To preserve independence, this analysis was accomplished without reliance upon the results contained within the NASA FMEA/CIL documentation. The IOA results were then compared to the NASA FMEA/CIL baseline with proposed Post 51-L updates included. A resolution of each discrepancy from the comparison is provided through additional analysis as required. This report documents the results of that comparison for the Orbiter Crew Equipment hardware.

The analysis was performed on only a subset of the crew equipment. This subset was agreed upon during negotiation between MDAC and the STS Orbiter and GFE Projects Offices. The subset includes crew equipment which meets the following criteria: (1) normally manifested on every flight; (2) has received final design approval; and (3) is covered by a NASA FMEA/CIL.

The IOA product for the Crew Equipment analysis consisted of 352 failure mode "worksheets" that resulted in 78 potential critical items being identified. Comparison was made to the NASA baseline (as of 1 January 1988) which consisted of 351 FMEAs and 82 CIL items. The comparison determined if there were any results which had been found by the IOA but were not in the NASA baseline. Figure 1 presents a comparison of the proposed Post 51-L NASA baseline, with the IOA recommended baseline, and any issues.

The issues arose due to differences between the NASA and IOA FMEA/CIL preparation instructions. NASA had used an older ground rules document which has since been superseded by the NSTS 22206 used by the IOA. After comparison, there were no discrepancies found that were not already identified by NASA, and the remaining issues may be attributed to differences in ground rules.

# CREW EQUIPMENT ASSESSMENT OVERVIEW

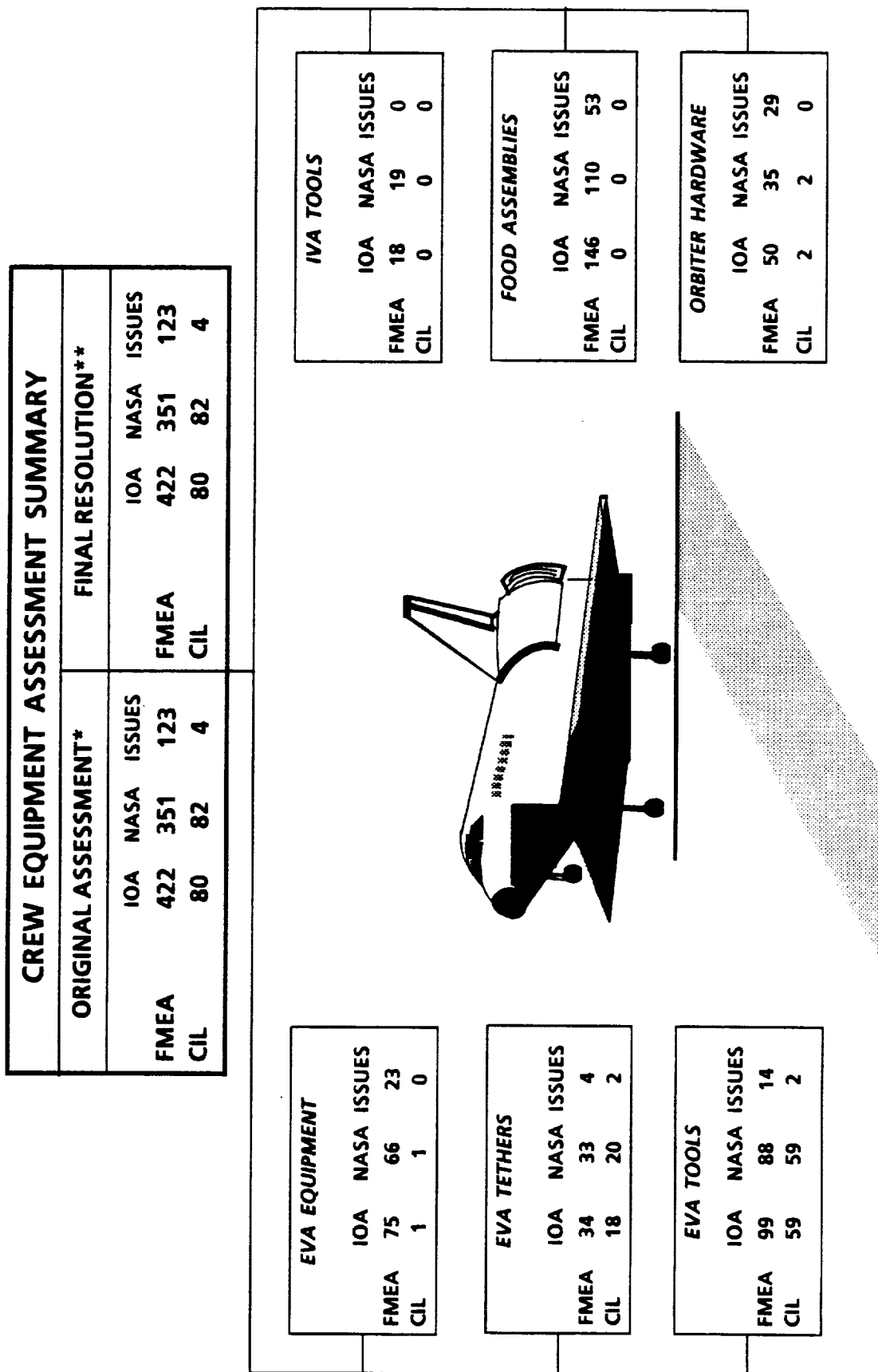


Figure 1 - CREW EQUIPMENT FMEA/CIL ASSESSMENT

\* NASA PROPOSED BASELINE  
 \*\* FINAL NASA BASELINE AS OF 1 JANUARY 1988

## **2.0 INTRODUCTION**

### **2.1 Purpose**

The 51-L Challenger accident prompted the NASA to readdress safety policies, concepts, and rationale being used in the National Space Transportation System (NSTS). The NSTS Office has undertaken the task of re-evaluating the FMEA/CIL for the Space Shuttle design. The MDAC is providing an independent assessment of the proposed Post 51-L Orbiter FMEA/CIL for completeness and technical accuracy.

### **2.2 Scope**

The scope of the independent FMEA/CIL assessment activity encompasses those Shuttle Orbiter subsystems and GFE hardware identified in the Space Shuttle Independent FMEA/CIL Assessment Contractor Statement of Work. Each subsystem analysis addresses hardware, functions, internal and external interfaces, and operational requirements for all mission phases.

### **2.3 Analysis Approach**

The independent analysis approach is a top-down analysis utilizing as-built drawings to breakdown the respective subsystem into components and low-level hardware items. Each hardware item is evaluated for failure mode, effects, and criticality. These data are documented in the respective subsystem analysis report, and are used to assess the proposed Post 51-L NASA and Prime Contractor FMEA/CIL. The IOA analysis approach is summarized in the following Steps 1.0 through 3.0. Step 4.0 summarizes the assessment of the NASA and Prime Contractor FMEA/CIL which is documented in this report.

#### **Step 1.0 Subsystem Familiarization**

- 1.1 Define subsystem functions
- 1.2 Define subsystem components
- 1.3 Define subsystem specific groundrules and assumptions

#### **Step 2.0 Define subsystem analysis diagram**

- 2.1 Define subsystem
- 2.2 Define major assemblies
- 2.3 Develop detailed subsystem representations

#### **Step 3.0 Failure events definition**

- 3.1 Construct matrix of failure modes
- 3.2 Document IOA analysis results

Step 4.0 Compare IOA analysis data to NASA FMEA/CIL

4.1 Resolve differences

4.2 Review in-house

4.3 Document assessment issues

4.4 Forward findings to Project Manager

## **2.4 Groundrules and Assumptions**

The groundrules and assumptions used in the IOA are defined in Appendix B. The subsystem specific groundrules were defined to provide necessary additions and clarifications to the ground rules and assumptions contained in NSTS 22206.

### **3.0 SUBSYSTEM DESCRIPTION**

#### **3.1 Design and Function**

The Crew Equipment consists of that hardware required for support of crew activities during flight. It includes both IVA and EVA support equipment.

#### **3.2 Interfaces and Locations**

The crew equipment items are located in both the crew compartment and the payload bay.

#### **3.3 Hierarchy**

The overall hierarchy for crew equipment is shown in Figure 2. Detailed breakdown are presented in Figures 3 through 12.

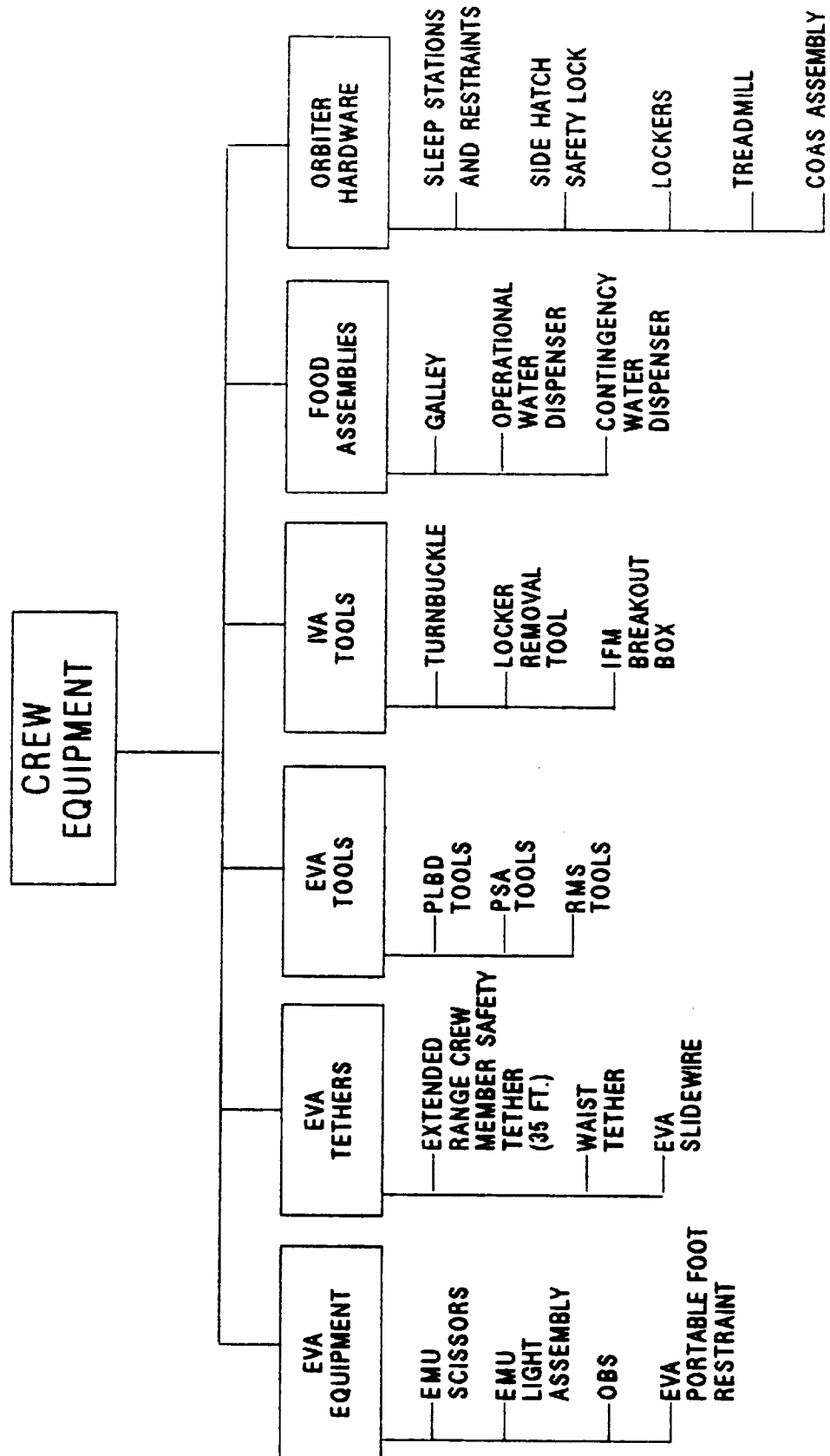


Figure 29: Crew Equipment Hierarchy



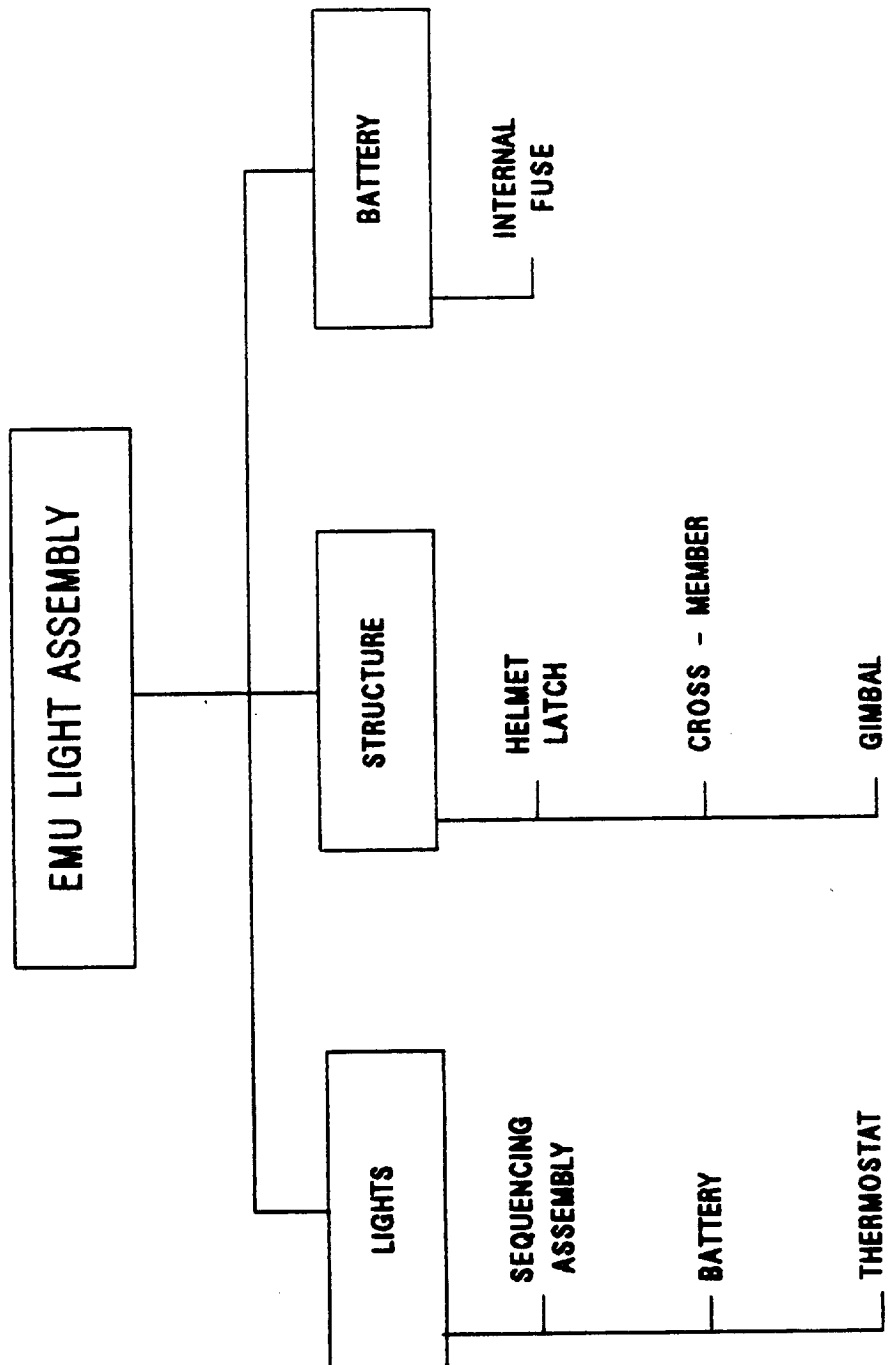


Figure 30: EMU Light Assembly Hierarchy

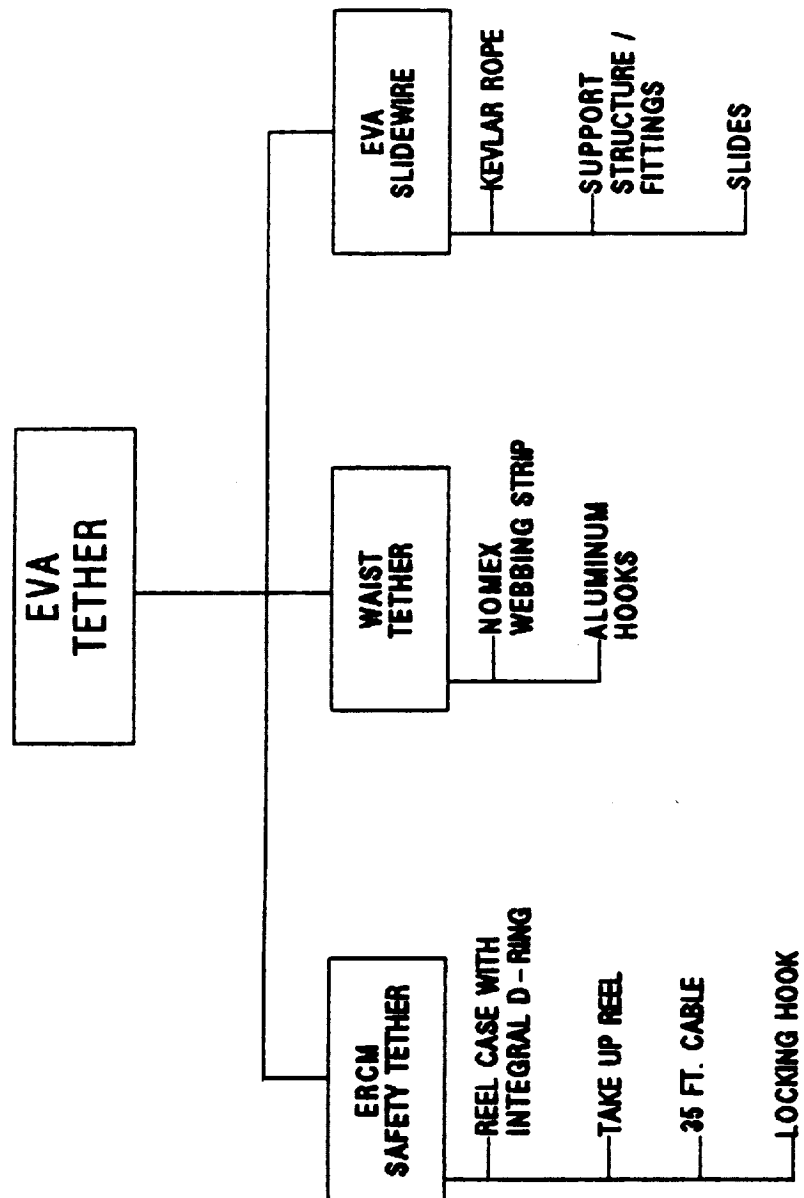


Figure 31: EVA Tether Hierarchy

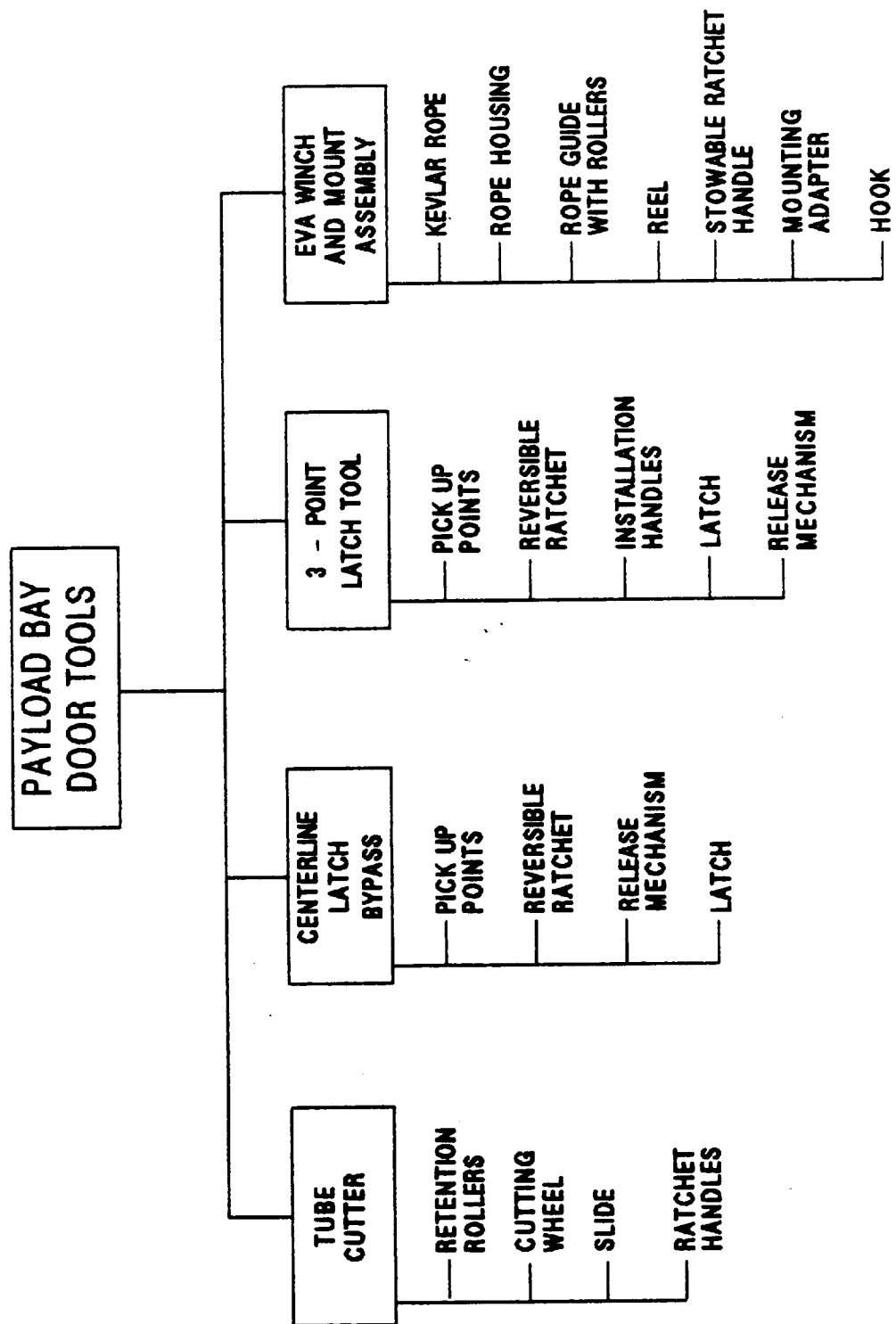


Figure 32: Payload Bay Door Tools Hierarchy

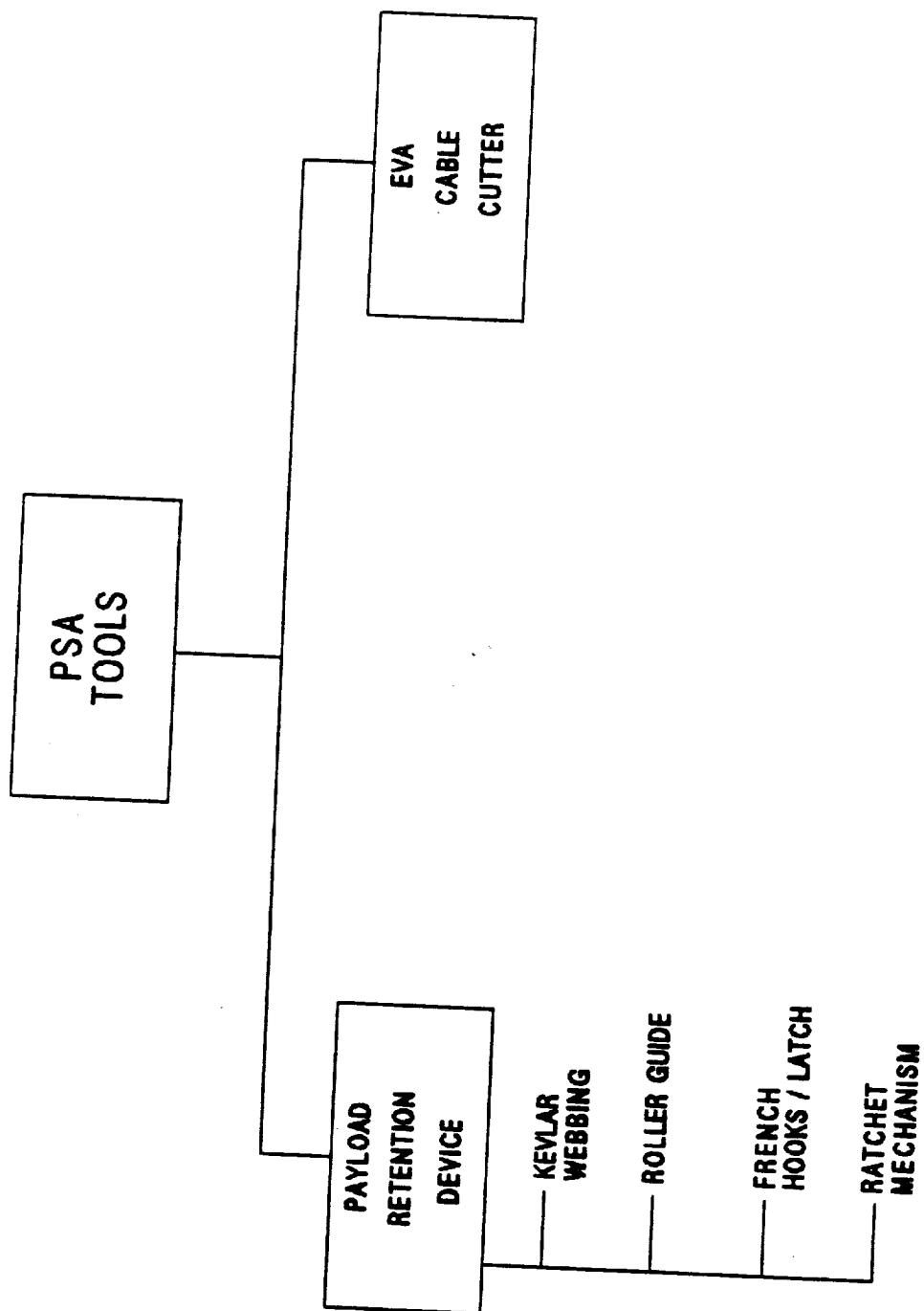


Figure 33: PSA Tool Hierarchy

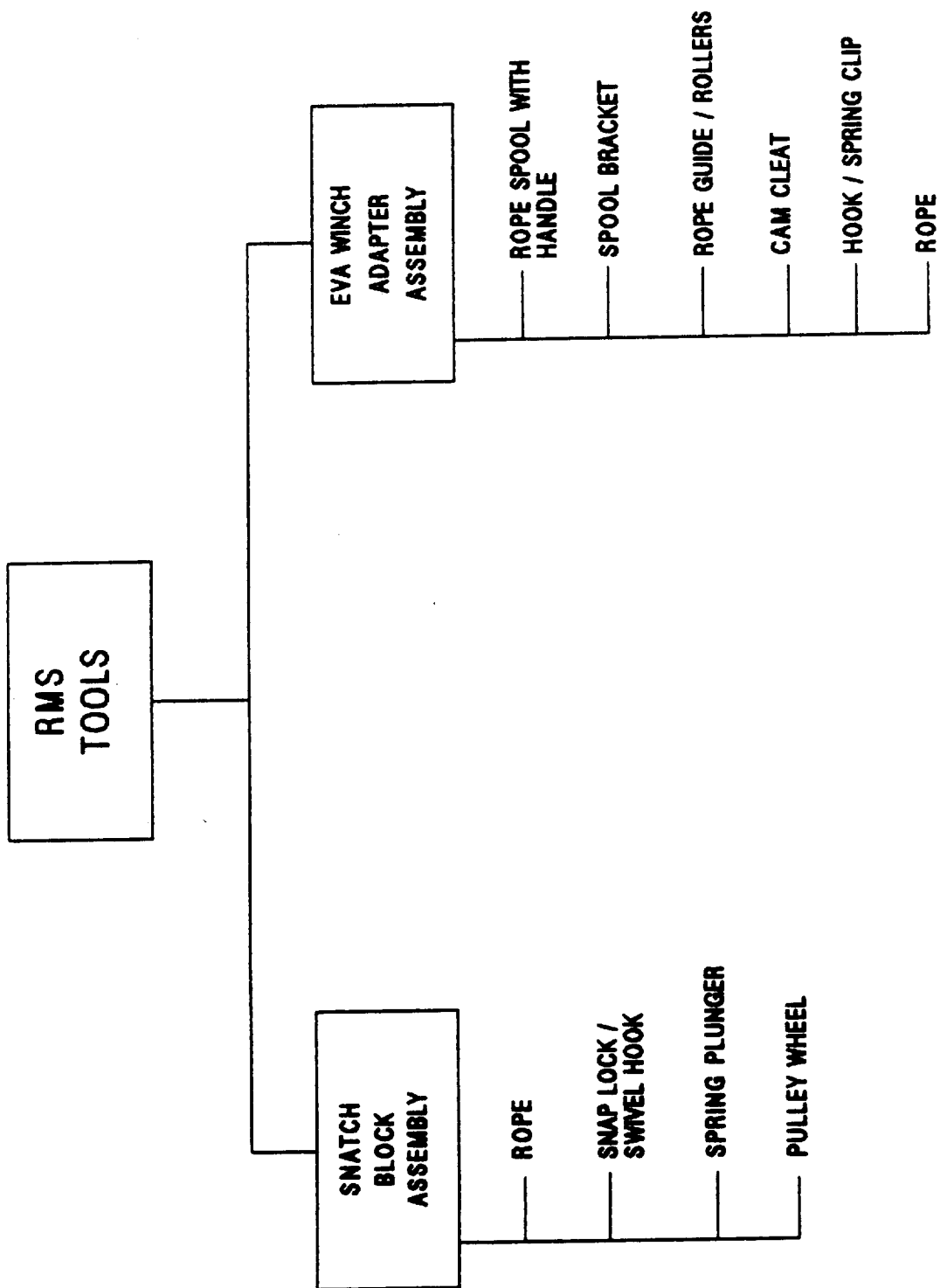


Figure 34: RMS Tool Hierarchy

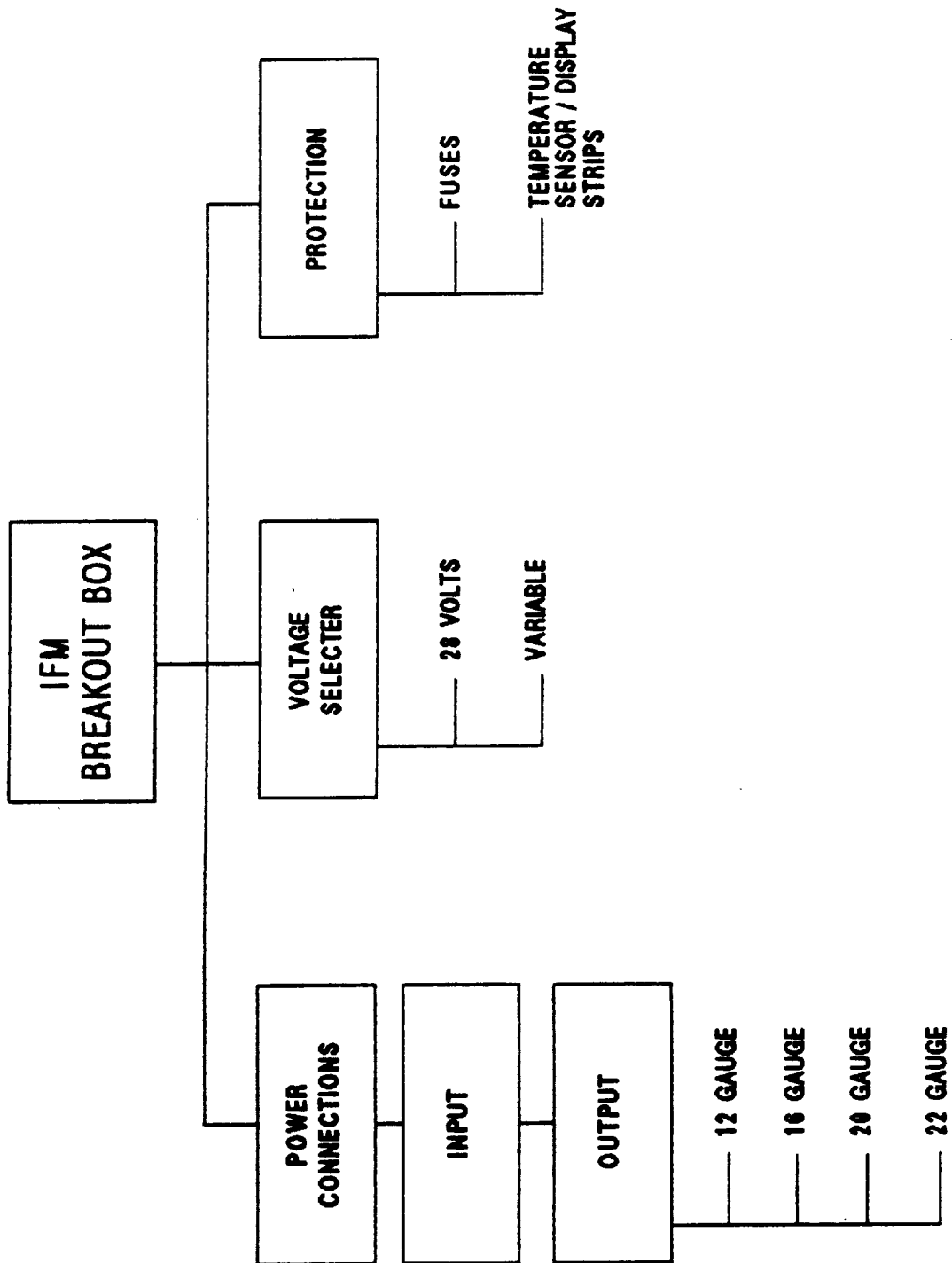


Figure 35: IFM Breakout Box Hierarchy

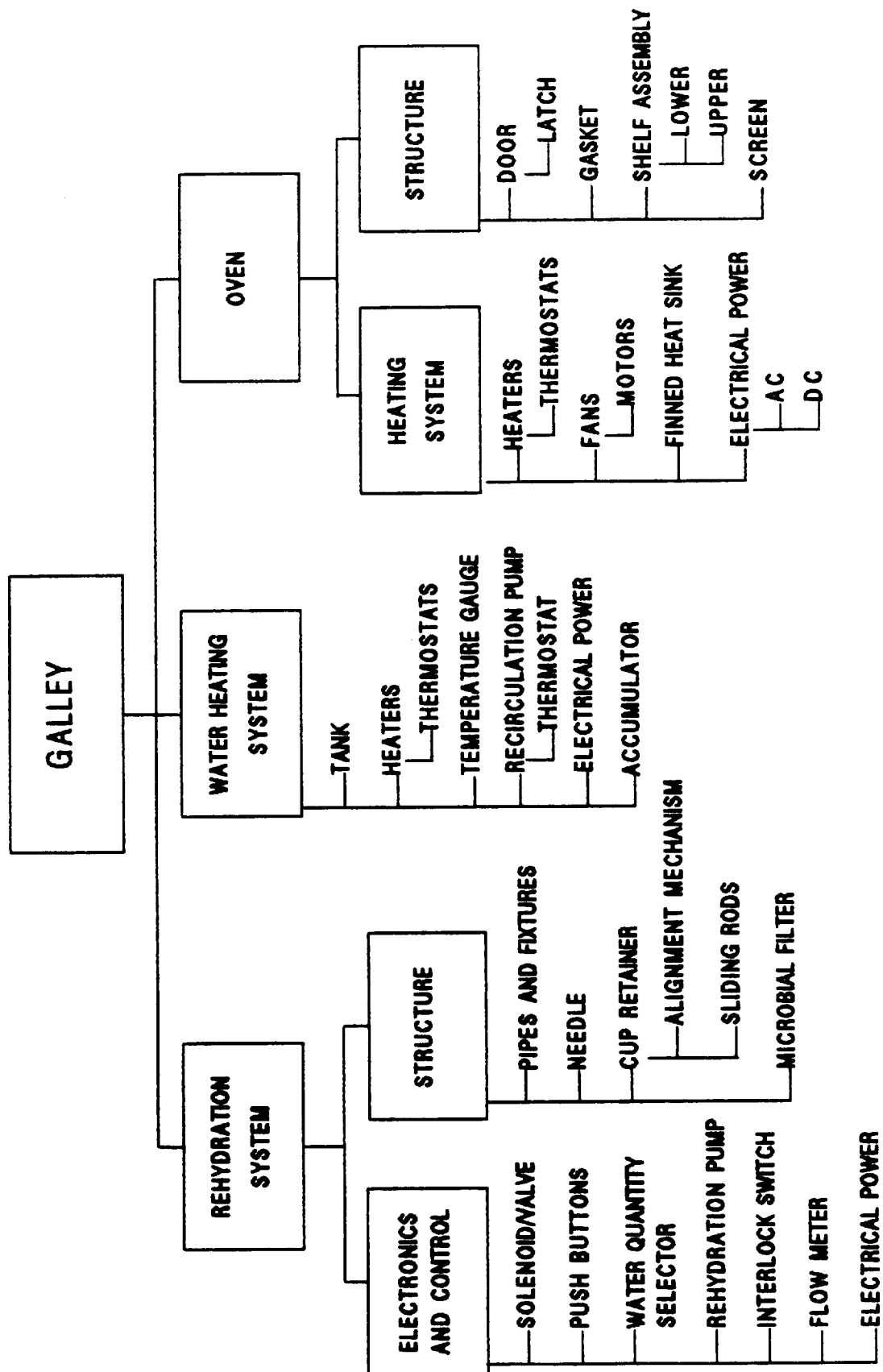


Figure 36: Galley Hierarchy

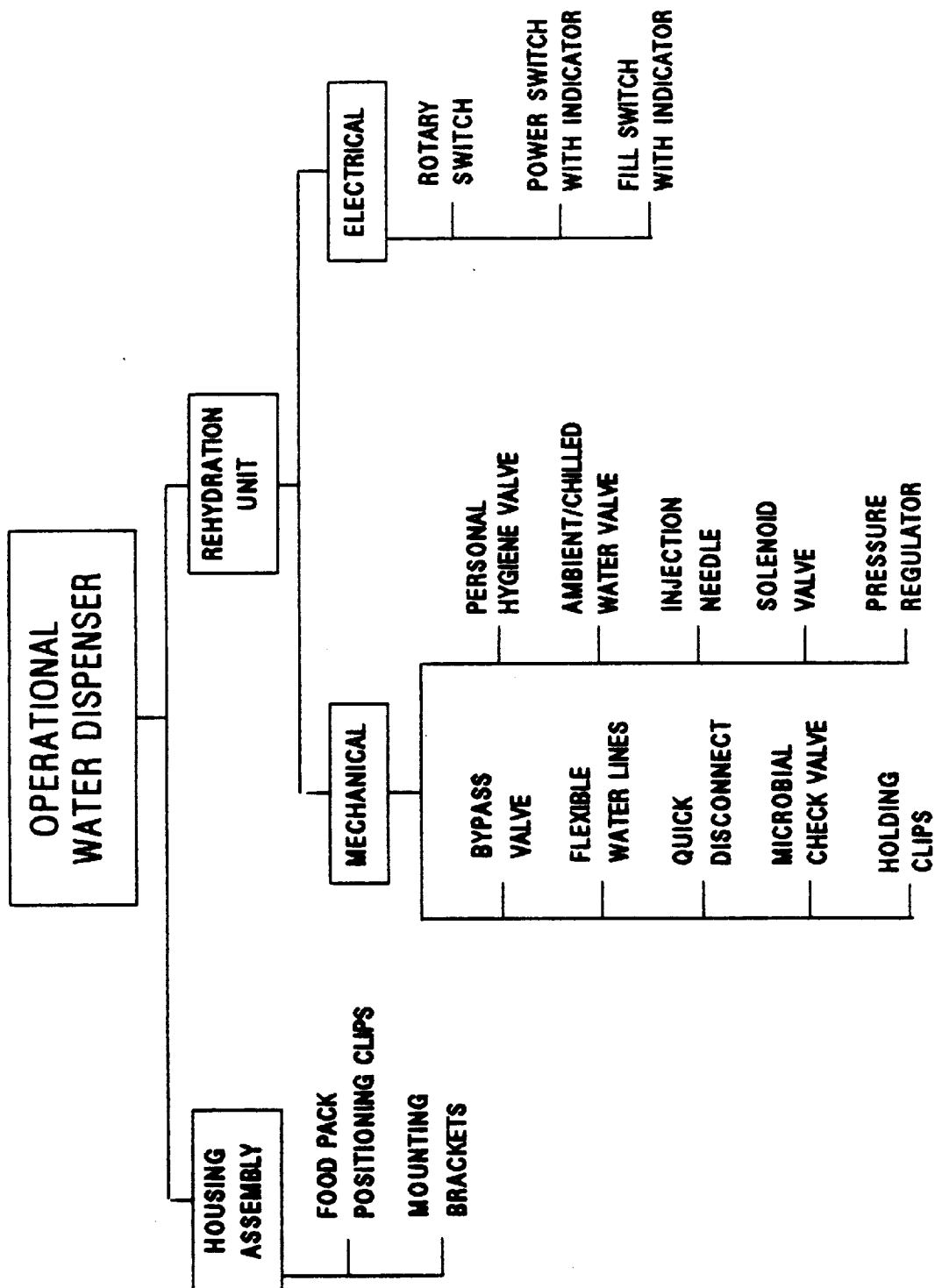


Figure 37: OWDA Hierarchy  
14



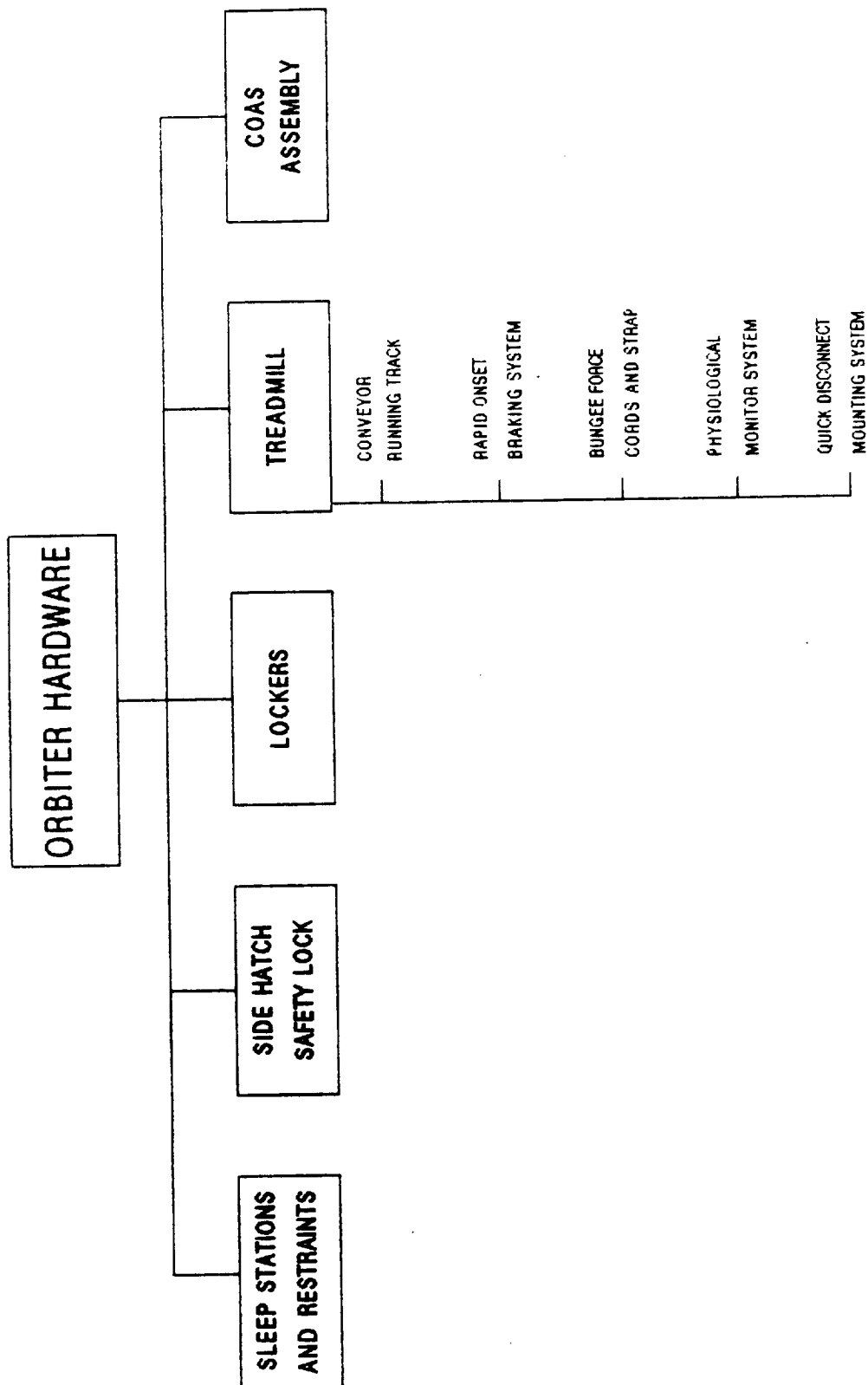


Figure 38: Orbiter Hardware Hierarchy

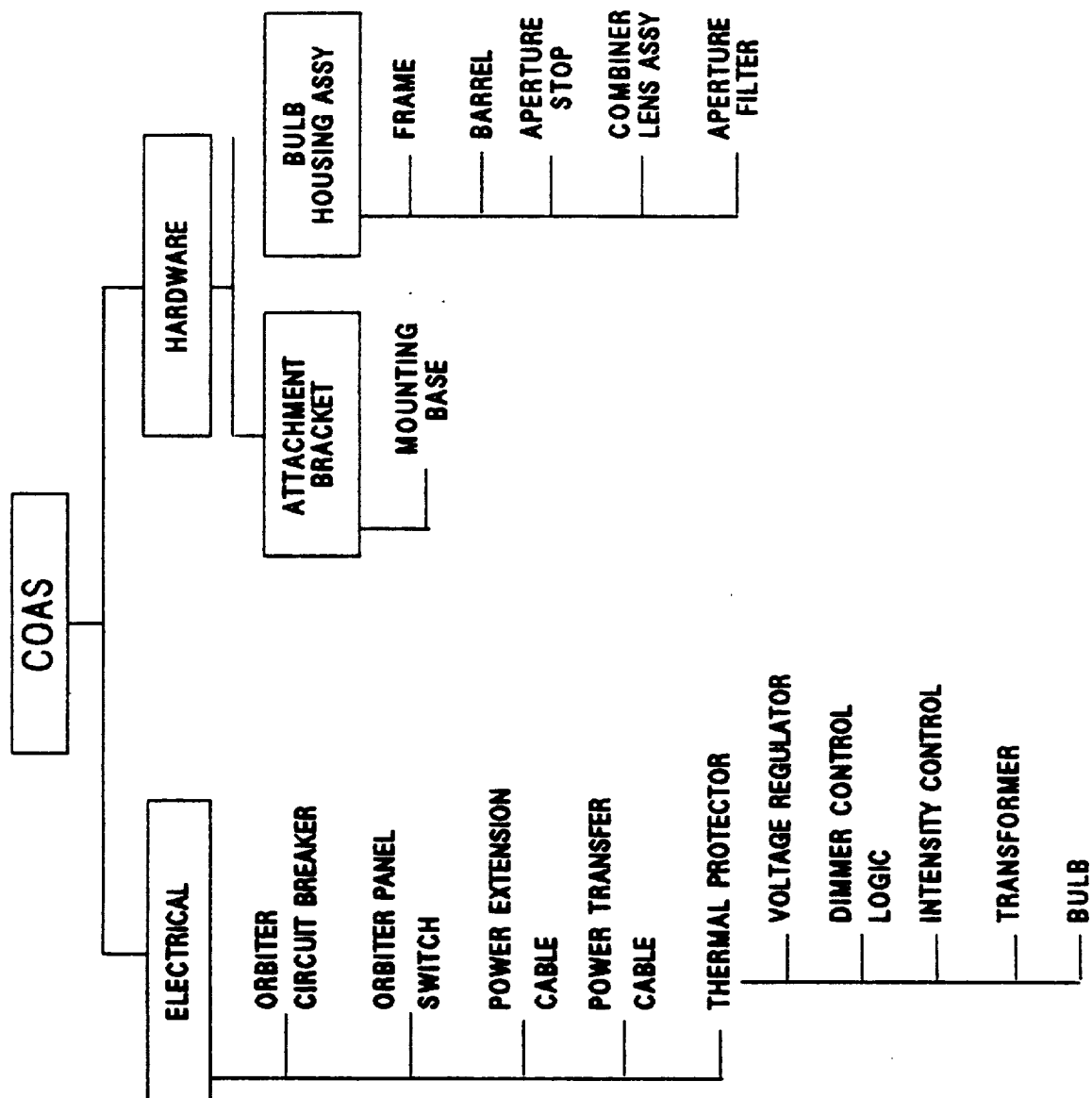


Figure 39: COAS Hierarchy

#### 4.0 ASSESSMENT RESULTS

The IOA analysis of the Crew Equipment hardware initially generated 352 failure mode worksheets and identified 78 Potential Critical Items (PCIs) before starting the assessment process. In order to facilitate comparison, 78 additional failure mode analysis worksheets were generated. These analysis results were compared to the proposed NASA Post 51-L baseline of 351 FMEAs and 82 CIL items. The FMEAs that remained had minor discrepancies that did not affect criticality.

A summary of the quantity of NASA FMEAs assessed, versus the recommended IOA baseline, and any issues identified is presented in Table I.

Table I SUMMARY OF IOA FMEA ASSESSMENT			
Component	NASA	IOA	Issues
EVA Equipment	66	75	23
EVA Tethers	33	34	4
EVA Tools	88	99	14
IVA Tools	19	18	-
Food Assemblies	110	146	53
Orbiter Hardware	35	50	29
TOTAL	351	422	123

A summary of the quantity of NASA CIL items assessed, versus the recommended IOA baseline, and any issues identified is presented in Table II.

Table II SUMMARY OF IOA CIL ASSESSMENT			
Component	NASA	IOA	Issues
EVA Equipment	1	1	-
EVA Tethers	20	18	2
EVA Tools	59	59	2
IVA Tools	-	-	-
Food Assemblies	-	-	-
Orbiter Hardware	2	2	-
TOTAL	82	80	4

Appendix C presents the detailed assessment worksheets for each failure mode identified and assessed. Appendix D highlights the NASA Critical Items and corresponding IOA worksheet ID. Appendix E contains IOA analysis worksheets supplementing previous analysis results reported in Space Transportation System Engineering and Operations Support (STSEOS) Working Paper No. 1.0-WP-VA87001-01, Analysis of the Crew Equipment Subsystem, 02 November 1987. Appendix F provides a cross reference between the NASA FMEA and corresponding IOA worksheet(s). IOA recommendations are also summarized.

Table III presents a summary of the IOA recommended failure criticalities for the Post 51-L FMEA baseline. Further discussion of each of these subdivisions and the applicable failure modes is provided in subsequent paragraphs.

TABLE III SUMMARY OF IOA RECOMMENDED FAILURE CRITICALITIES							
Criticality:	1/1	2/1R	2/2	3/1R	3/2R	3/3	TOTAL
EVA Equipment	1	-	-	-	49	25	75
EVA Tethers	15	3	-	-	1	15	34
EVA Tools	23	34	-	6	3	33	99
IVA Tools	-	-	-	8	-	10	18
Food Assemblies	-	-	-	-	45	101	146
Orbiter Hardware	-	2	-	6	-	42	50
TOTAL	39	39	-	20	98	226	422

Of the failure modes analyzed, 80 were determined to be critical items. A summary of the IOA recommended critical items is presented in Table IV.

Table IV SUMMARY OF IOA RECOMMENDED FAILURE CRITICALITIES							
Criticality:	1/1	2/1R	2/2	3/1R	3/2R	3/3	TOTAL
EVA Equipment	1	-	-	-	-	-	1
EVA Tethers	15	3	-	-	-	-	18
EVA Tools	23	34	-	2	-	-	59
IVA Tools	-	-	-	-	-	-	-
Food Assemblies	-	-	-	-	-	-	-
Orbiter Hardware	-	2	-	-	-	-	2
TOTAL	39	39	-	2	-	-	80

The scheme for assigning IOA assessment (Appendix C) and analysis (Appendix E) worksheet numbers is shown in Table V.

Table V IOA WORKSHEET NUMBERS		
Component	IOA ID Number	FMEAs 'ADDED TO ORIGINAL ANALYSIS
EVA Equipment	CRWEQP 1100-1499	11100-11499
EVA Tethers	CRWEQP 2100-2399	12100-12399
EVA Tools	CRWEQP 3100-3899	13100-13899
IVA Tools	CRWEQP 4100-4399	14100-14399
Food Assemblies	CRWEQP 5100-5499	15100-15499
Orbiter Hardware	CRWEQP 6100-6599	16100-16599

#### 4.1 EVA Equipment Assessment Results

The IOA analysis identified five failure modes of the EVA scissors. The NASA determined the EVA scissors were non-critical items, so there were no FMEA/CILs available for comparison. The assessment of the EMU light assembly generated eight new failure modes. One of these failure modes (MDAC ID 11216) shows the battery cell as a criticality 1/1 because of the possibility of toxic venting or explosion. Three new FMEAs were generated for the OBS. The IOA analysis of the OBS identified five failure modes which were not considered by NASA. The failure modes were not critical, but were included for completeness. The assessment of the PFR generated one new FMEA, which was not critical.

#### 4.2 EVA Tethers Assessment Results

The IOA disagrees with NASA's analysis of a hook failing to close as criticality 1/1. The failure mode implies that the hook is not in use, so its failure will not lead to an unrestrained crewmember. The IOA differs with NASA on this issue for both the ERCM safety tether and the waist tether. For all other failure modes, MDAC either agrees with, or accepts NASA's analysis.

#### 4.3 EVA Tools Assessment Results

The NASA analysis does not include a failure mode corresponding to a failure of the three-point latch hook. This failure mode should be added to the NASA's FMEA/CIL data base. The IOA believes that NASA's analysis of the snatch block hook latch as a criticality 2/1R is too high and should be lowered. If the hook latch fails to close, then the tool is not in use at that time. For the other EVA tools, the IOA either agrees with or accepts NASA's results.

#### 4.4 IVA Tools Assessment Results

The FMEA/CIL assessment recommends deleting three FMEAs as being non-credible failures (MDAC IDs 4200, 4307, 4310). With these deletions, IOA agrees completely with NASA on the IVA tools that were analyzed. All of the tools were found to be non-critical primarily because of redundant hardware.

#### 4.5 Food Assemblies Assessment Results

The IOA found that none of the hardware which had been analyzed were critical hardware. IOA identified 35 FMEAs which were not analyzed by NASA, and generated 44 new FMEAs to correspond to failure modes NASA identified which had not been analyzed by IOA. The slight differences in criticality ratings of FMEAs between IOA and NASA is primarily due to differences in groundrules. During the assessment process it was determined that five IOA failure modes were non-credible and IOA recommends that these be deleted.

#### 4.6 Orbiter Hardware Assessment Results

The IOA found that none of the orbiter hardware, which had been analyzed, were critical hardware. The assessment did generate two new FMEAs for the treadmill and six new FMEAs for the COAS. The assessment recommends accepting NASA's FMEAs and criticalities for the mid-deck stowage lockers.

## 5.0 REFERENCES

Reference documentation available from NASA and Rockwell was used in the analysis. The documentation used included the following:

1. NSTS 22206 Instructions for preparation of Failure Modes and Effects Analysis (FMEA) and Critical Items List (CIL), Change No. 4, 11-3-87.
2. V602-660302 EO A-09, Turnbuckle, 4-23-85.
3. V625-650899 EO A-02, Locker Removal Tool, 1-25-79.
4. 10131-10031, Treadmill Exerciser Assembly, 9-25-84.
5. V620-660810 EO D-05, Crewman Optical Alignment Sight Assembly, 1-31-86.
6. V620-660730 EO A-09, COAS Aft Bracket, 11-21-85.
7. V620-660720 EO B-02, COAS Forward Bracket, 7-26-85.
8. SED 48101600 Rev A, Operational Water Dispenser Assembly, 2-10-83.
9. V602-660604 EO B-17, Locker Assembly, 11-8-84.
10. SED 48101607 Rev A, Contingency Water Dispenser Assembly, 8-18-82.
11. SED 33102357 Rev A DCN 8-5-82, Snatch Block Assembly, 8-5-82.
12. 10159-20076, EVA Scissors Assembly, 5-9-83.
13. SED 33102348 Rev A, EVA Winch Adapter, 12-1-81.
14. SED 33101368 DCN 3/28/83, EVA Tube Cutter Assembly, 3-28-83.
15. SED33101621 DCN 1/25/83, Centerline Latch Tool Assembly, 1-25-83.
16. SED 33101327 Rev C, Three Point Latch Tool Assembly, 5-5-84.
17. SED 33101570, EVA Winch and Mount Assembly, 2-16-80.
18. 10163-10063, Payload Retention Device, 1-12-82.
19. 10134-20001, In-Flight Maintenance Breakout Box, 4-2-85.
20. V617-544702, EVA Operational Slidewire System Link 7-8-82.
21. M072-544700, EVA Operational Slidewire System Technical Order Installation Drawing, 9-23-82.

22. V617-544701, EVA Operational Slidewire System Yoke, 7-7-82.
23. V617-544720, EO B-01 EVA Operational Slidewire, 7-22-85
24. 10161-10061, EMU Lights Assembly, 5-2-81.
25. 10161-60029, EMU Light Sequencer Mark IV Schematic, 11-29-83.
26. 10161-20033, Gimbal Assembly: EMU Lights Assembly, 4-29-81.
27. 10161-20001, Single Cell Battery Module: EMU Light Assembly, 4-18-81.
28. SED 42100961, Operational Bioinstrumentation System EVA Cable Assembly, 10-10-84.
29. 10162-10062 EO 101-374, Extended Range Crew Member Safety Tether Assembly, 8-30-85.
30. 10151-20040, Waist Tether Assembly, 1-23-80.
31. 10159-10034, Portable Foot Restraint Platform Assembly, 1-25-85.
32. 10155-20003, Portable Foot Restraint Boom Assembly, 11-1-82.
33. 10155-20004, Portable Foot Restraint Centerline Clamp Assembly, 3-7-85.
34. 10155-10035, Portable Foot Restraint Articulating Socket Assembly, 5-7-82.
35. V601-669100 Rev B, Sleep Station Restraint Assembly, 2-14-84.
36. JSC 20466, EVA Catalog Tools and Equipment, 11-4-85.
37. JSC 12770, Shuttle Flight Operations Manual Vol. 12, Crew Systems, Basic Rev A, 8-16-85.
38. SSSH 9.5, Crew Optical Alignment Sight Assembly, 10-18-83.
39. JSC-20365, Food System and Dining Workbook.
40. JSC-17321, FDF: IFM Checklist.
41. EVA Prep/Post 2102 Training Workbook.
42. JSC-12770, Shuttle Flight Operations Manual Vol. 15, EVA Systems, Basic Rev. A, 1-6-84
43. SED 33103383 Rev A, Side Hatch Safety Lock, 5-15-85.



# APPENDIX A ACRONYMS

AOA	- Abort-Once-Around
ASE	- Aerospace Support Equipment
ATO	- Abort-To-Orbit
C&W	- Caution and Warning
CIL	- Critical Items List
COAS	- Crew Optical Alignment Sight
CWDA	- Contingency Water Dispenser Assembly
dc	- Direct Current
EMU	- Extravehicular Mobility Unit
ERCM	- Extended Range Crew Member
EVA	- Extravehicular Activity
F	- Fahrenheit
F	- Functional
FMEA	- Failure Modes and Effects Analysis
FSSR	- Flight Systems Software Requirements
GFE	- Government Furnished Equipment
GPC	- General Purpose Computer
HW	- Hardware
IFM	- In-Flight Maintenance
IMU	- Inertial Measurement Unit
IOA	- Independent Orbiter Assessment
IUS	- Inertial Upper Stage
IVA	- Intravehicular Activity
JSC	- Johnson Space Center
LED	- Light Emitting Diode
MDAC	- McDonnell Douglas Astronautics Company
NA	- Not Applicable
NSTS	- National Space Transportation System
OBS	- Operational Bioinstrumentation System
OWDA	- Operational Water Dispenser Assembly
PCI	- Potential Critical Item
PFR	- Portable Foot Restraint
PHS	- Personal Hygiene Station
PLBD	- Payload Bay Door
PRCBD	- Program Requirements Control Board Directive
PRD	- Payload Retention Device
PSA	- Provision Stowage Assembly
psi	- Pounds per Square Inch
QD	- Quick Disconnect
RHS	- Rehydration Station
RMS	- Remote Manipulator System
RTLS	- Return-to-Launch Site

SFOM	- Shuttle Flight Operations Manual
SM	- Systems Management
SOP	- Secondary Oxygen Pack
SSSH	- Space Shuttle Systems Handbook
STS	- Space Transportation System
TAL	- Transatlantic Abort Landing
V	- Volt

## **APPENDIX B**

### **DEFINITIONS, GROUND RULES, AND ASSUMPTIONS**

- B.1 Definitions**
- B.2 Project Level Ground Rules and Assumptions**
- B.3 Subsystem-Specific Ground Rules and Assumptions**

## B.1 Definitions

Definitions contained in NSTS 22206, Instructions For Preparation of FMEA/CIL, 10 October 1986, change 4, 3 November 1987, were used with the following amplifications and additions.

### INTACT ABORT DEFINITIONS:

RTLS - begins at transition to OPS 6 and ends at transition to OPS 9, post-flight

TAL - begins at declaration of the abort and ends at transition to OPS 9, post-flight

AOA - begins at declaration of the abort and ends at transition to OPS 9, post-flight

ATO - begins at declaration of the abort and ends at transition to OPS 9, post-flight

CREDIBLE (CAUSE) - an event that can be predicted or expected in anticipated operational environmental conditions. Excludes an event where multiple failures must first occur to result in environmental extremes

CONTINGENCY CREW PROCEDURES - procedures that are utilized beyond the standard malfunction procedures, pocket checklists, and cue cards

EARLY MISSION TERMINATION - termination of onorbit phase prior to planned end of mission

EFFECTS/RATIONALE - description of the case which generated the highest criticality

HIGHEST CRITICALITY - the highest functional criticality determined in the phase-by-phase analysis

MAJOR MODE (MM) - major sub-mode of software operational sequence (OPS)

MC - Memory Configuration of Primary Avionics Software System (PASS)

MISSION - assigned performance of a specific Orbiter flight with payload/objective accomplishments including orbit phasing and altitude (excludes secondary payloads such as GAS cans, middeck P/L, etc.)

MULTIPLE ORDER FAILURE - describes the failure due to a single cause or event of all units which perform a necessary (critical) function

OFF-NOMINAL CREW PROCEDURES - procedures that are utilized beyond the standard malfunction procedures, pocket checklists, and cue cards

OPS - software operational sequence

PRIMARY MISSION OBJECTIVES - worst case primary mission objectives are equal to mission objectives

PHASE DEFINITIONS:

PRELAUNCH PHASE - begins at launch count-down Orbiter power-up and ends at moding to OPS Major Mode 102 (liftoff)

LIFTOFF MISSION PHASE - begins at SRB ignition (MM 102) and ends at transition out of OPS 1 (Synonymous with ASCENT)

ONORBIT PHASE - begins at transition to OPS 2 or OPS 8 and ends at transition out of OPS 2 or OPS 8

DEORBIT PHASE - begins at transition to OPS Major Mode 301 and ends at first main landing gear touchdown

LANDING/SAFING PHASE - begins at first main gear touchdown and ends with the completion of post-landing safing operations

## B.2 IOA Project Level Ground Rules and Assumptions

The philosophy embodied in NSTS 22206, Instructions for Preparation of FMEA/CIL, 10 October 1986, change 4, 3 November 1987 was employed with the following amplifications and additions.

1. The operational flight software is an accurate implementation of the Flight System Software Requirements (FSSRs).

RATIONALE: Software verification is out-of-scope of this task.

2. After liftoff, any parameter which is monitored by system management (SM) or which drives any part of the Caution and Warning System (C&W) will support passage of Redundancy Screen B for its corresponding hardware item.

RATIONALE: Analysis of on-board parameter availability and/or the actual monitoring by the crew is beyond the scope of this task.

3. Any data employed with flight software is assumed to be functional for the specific vehicle and specific mission being flown.

RATIONALE: Mission data verification is out-of-scope of this task.

4. All hardware (including firmware) is manufactured and assembled to the design specifications/drawings.

RATIONALE: Acceptance and verification testing is designed to detect and identify problems before the item is approved for use.

5. All Flight Data File crew procedures will be assumed performed as written, and will not include human error in their performance.

RATIONALE: Failures caused by human operational error are out-of-scope of this task.

6. All hardware analyses will, as a minimum, be performed at the level of analysis existent within NASA/Prime Contractor Orbiter FMEA/CILs, and will be permitted to go to greater hardware detail levels but not lesser.

RATIONALE: Comparison of IOA analysis results with other analyses requires that both analyses be performed to a comparable level of detail.

7. Verification that a telemetry parameter is actually monitored during AOS by ground-based personnel is not required.

RATIONALE: Analysis of mission-dependent telemetry availability and/or the actual monitoring of applicable data by ground-based personnel is beyond the scope of this task.

8. The determination of criticalities per phase is based on the worst case effect of a failure for the phase being analyzed. The failure can occur in the phase being analyzed or in any previous phase, whichever produces the worst case effects for the phase of interest.

RATIONALE: Assigning phase criticalities ensures a thorough and complete analysis.

9. Analysis of wire harnesses, cables, and electrical connectors to determine if FMEAs are warranted will not be performed nor FMEAs assessed.

RATIONALE: Analysis was substantially complete prior to NSTS 22206 ground rule redirection.

10. Analysis of welds or brazed joints that cannot be inspected will not be performed nor FMEAs assessed.

RATIONALE: Analysis was substantially complete prior to NSTS 22206 ground rule redirection.

11. Emergency system or hardware will include burst discs and will exclude the EMU Secondary Oxygen Pack (SOP), pressure relief valves and the landing gear pyrotechnics.

RATIONALE: Clarify definition of emergency systems to ensure consistency throughout IOA project.

### **B.3 Crew Equipment Specific Ground Rules and Assumptions**

The IOA analysis was performed to the component or assembly level of the crew equipment subsystem. The analysis considered the worst case effects of the hardware or functional failure on the subsystem, mission, and crew and vehicle safety.

1. Waist tether is used to fasten a crewmember to either a workstation or to the ERCM safety tether. It is not used to restrain tools.

RATIONALE: Worst case possibility.

2. The Operational Bioinstrumentation System (OBS) will be considered as a non-mandatory item for EVA operations. Failure of the OBS while monitoring an IVA crewmember can require the Flight Surgeon to terminate the mission. Thus, IVA usage is more critical.

RATIONALE: IVA crewmembers are hooked to the OBS only at the request of the Flight Surgeon. If a crewmember's health cannot be monitored, the Flight Surgeon has the option of terminating the mission.

3. Crew actions, planned and unplanned, are considered viable alternatives for overcoming failures and reducing criticalities.

RATIONALE: Crew equipment is designed to permit this capability.

4. "Normally expected environmental conditions" precludes the existence of contamination in all water lines.

RATIONALE: Interpretation and application of redundancy screen C.

5. Lockers are assumed to contain emergency, lifesaving, or IFM critical equipment.

RATIONALE: Worst case possibility.

6. Crew equipment failures discovered prior to launch will be corrected prelaunch.

RATIONALE: Interpretation of flight rules.

7. RMS jettison is considered unlike redundancy to RMS stowing.

RATIONALE: Definition of redundancy.



8. The EMU lights are not designated as mandatory items during EVA.

RATIONALE: Definition of mandatory versus non-mandatory requirements.

9. The failure of an EVA tether such that the crewmember is unrestrained will be assigned a "1/1" criticality.

RATIONALE: Worst case possibility

10. Certain galley and OWDA failures can result in free water in the cabin. It is not a part of this task to identify the hazards that free water can pose to other on-board systems.

RATIONALE: This should be addressed by a "hazard analysis".

11. Complete loss of the galley will not terminate a mission as long as alternate water sources are available.

RATIONALE: The FDF contains procedures to bypass the galley for water if required. Other galley functions are not required for completion of mission.



## APPENDIX C DETAILED ASSESSMENT

This section contains the IOA assessment worksheets generated during the assessment of this subsystem. The information on these worksheets facilitates the comparison of the NASA FMEA/CIL (Pre and Post 51-L) to the IOA detailed analysis worksheets included in Appendix E. Each of these worksheets identifies the NASA FMEA being assessed, corresponding MDAC Analysis Worksheet ID (Appendix E), hardware item, criticality, redundancy screens, and recommendations. For each failure mode, the highest assessed hardware and functional criticality is compared and discrepancies noted as "N" in the compare row under the column where the discrepancy occurred.

### LEGEND FOR IOA ASSESSMENT WORKSHEETS

-----

#### Hardware Criticalities:

- 1 = Loss of life or vehicle
- 2 = Loss of mission or next failure of any redundant item (like or unlike) could cause loss of life/vehicle
- 3 = All others

#### Functional Criticalities:

- 1R = Redundant hardware items (like or unlike) all of which, if failed, could cause loss of life or vehicle
- 2R = Redundant hardware items (like or unlike) all of which, if failed, could cause loss of mission

#### Redundancy Screens A, B and C:

- P = Passed Screen
- F = Failed Screen
- NA = Not Applicable

#### NASA Data :

- Baseline = NASA FMEA/CIL
- New = Baseline with Proposed Post 51-L Changes

#### CIL Item :

- X = Included in CIL

#### Compare Row :

- N = Non compare for that column (deviation)

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/10/87  
ASSESSMENT ID: CRWEQP-1100  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1100  
ITEM: EVA SCISSORS - SPRING

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THIS ITEM WAS DETERMINED BY NASA TO BE NON-CRITICAL ITEM NOT  
REQUIRING ANY FMEAs.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/10/87  
ASSESSMENT ID: CRWEQP-1101  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1101  
ITEM: EVA SCISSORS - BLADE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THIS ITEM WAS DETERMINED BY NASA TO BE NON-CRITICAL ITEM NOT  
REQUIRING ANY FMEAs.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/10/87  
ASSESSMENT ID: CRWEQP-1102  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1102  
ITEM: EVA SCISSORS - BLADES

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THIS ITEM WAS DETERMINED BY NASA TO BE NON-CRITICAL ITEM NOT  
REQUIRING ANY FMEAs.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/10/87  
ASSESSMENT ID: CRWEQP-1103  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1103  
ITEM: EVA SCISSORS LOCKING BAR

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

THIS ITEM WAS DETERMINED BY NASA TO BE NON-CRITICAL ITEM NOT  
REQUIRING ANY FMEAs.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/10/87  
ASSESSMENT ID: CRWEQP-1104  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1104  
ITEM: EVA SCISSORS HINGE PIN

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THIS ITEM WAS DETERMINED BY NASA TO BE NON-CRITICAL ITEM NOT  
REQUIRING ANY FMEAs.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/07/87  
ASSESSMENT ID: CRWEQP-1200  
NASA FMEA #: JSC22453-8B

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1200  
ITEM: EMU LIGHT ASSEMBLY - SEQUENCING CIRCUIT BATTERY

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/07/87  
ASSESSMENT ID: CRWEQP-1201  
NASA FMEA #: JSC22453-8B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1201  
ITEM: EMU LIGHT ASSEMBLY - SEQUENCING CIRCUIT THERMOSTAT

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/07/87  
ASSESSMENT ID: CRWEQP-1202  
NASA FMEA #: JSC22453-5A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1202  
ITEM: EMU LIGHT ASSEMBLY - SEQUENCING CIRCUIT  
THERMOSTAT

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
FLIGHT		A	B	C	
HDW/FUNC					
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/07/87  
ASSESSMENT ID: CRWEQP-1203  
NASA FMEA #: JSC22453-8A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1203  
ITEM: EMU LIGHT ASSEMBLY - SEQUENCING CIRCUIT SWITCH

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/07/87  
ASSESSMENT ID: CRWEQP-1204  
NASA FMEA #: JSC22453-8B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1204  
ITEM: EMU LIGHT ASSEMBLY - SEQUENCING CIRCUIT

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/07/87	NASA DATA:
ASSESSMENT ID: CRWEQP-1205	BASELINE [    ]
NASA FMEA #: JSC22453-7A	NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1205  
ITEM: EMU LIGHT ASSEMBLY - BULB

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY	SCREENS		CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	[    ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/07/87  
ASSESSMENT ID: CRWEQP-1206  
NASA FMEA #: JSC22453-9A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1206  
ITEM: EMU LIGHT ASSEMBLY-GIMBAL

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
	FLIGHT	HDW/FUNC	A	B	C	
NASA	[ 3 /2R ]		[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]		[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]		[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/07/87  
ASSESSMENT ID: CRWEQP-1207  
NASA FMEA #: JSC22453-9A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1207  
ITEM: EMU LIGHT ASSEMBLY-GIMBAL

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/07/87  
ASSESSMENT ID: CRWEQP-1208  
NASA FMEA #: JSC22453-9A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1208  
ITEM: EMU LIGHT ASSEMBLY-GIMBAL

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/07/87  
ASSESSMENT ID: CRWEQP-1209  
NASA FMEA #: JSC22453-10A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1209  
ITEM: EMU LIGHT ASSEMBLY-HELMET LATCH

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/07/87  
ASSESSMENT ID: CRWEQP-1210  
NASA FMEA #: JSC22453-10A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1210  
ITEM: EMU LIGHT ASSEMBLY-HELMET LATCH

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
	FLIGHT	HDW/FUNC	A	B	C	
NASA	[ 3 / 3 ]		[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]		[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]		[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/07/87	NASA DATA:
ASSESSMENT ID: CRWEQP-1211	BASELINE [    ]
NASA FMEA #: JSC22453-10A	NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1211  
ITEM: EMU LIGHT ASSEMBLY-CROSS MEMBER

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS		CIL ITEM
		A            B            C		
NASA	[ 3 / 3 ]	[    ]    [    ]    [    ]		[    ] *
IOA	[ 3 / 3 ]	[    ]    [    ]    [    ]		[    ]
COMPARE	[    /    ]	[    ]    [    ]    [    ]		[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	
					(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/07/87  
ASSESSMENT ID: CRWEQP-1212  
NASA FMEA #: JSC22453-3A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1212  
ITEM: EMU LIGHT ASSEMBLY-BATTERY

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/07/87  
ASSESSMENT ID: CRWEQP-1213  
NASA FMEA #: JSC22453-3A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1213  
ITEM: EMU LIGHT ASSEMBLY BATTERY-INTERNAL FUSE

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/07/87  
ASSESSMENT ID: CRWEQP-1214  
NASA FMEA #: JSC22453-3A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1214  
ITEM: EMU LIGHT ASSEMBLY - BATTERY CONTACTS

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-1300  
NASA FMEA #: OBS 2A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1300  
ITEM: OBS - SIGNAL CONDITIONER

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ NA ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ NA ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NOTE: IOA CRITICALITY IS BEING MATCHED TO NASA's IVA CRITICALITY INSTEAD OF NASA's EVA CRITICALITY. THE IVA ANALYSIS IS ASSUMED TO REFLECT WORST CASE CONDITIONS.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-1301  
NASA FMEA #: OBS 2C

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1301  
ITEM: OBS - SIGNAL CONDITIONER - BATTERY

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ NA]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ NA]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA CRITICALITY MATCHED TO NASAs IVA CRITICALITY TO REFLECT WORST CASE ANALYSIS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/11/87  
ASSESSMENT ID: CRWEQP-1301A  
NASA FMEA #: OBS 5A

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1301  
ITEM: OBS - SIGNAL CONDITIONER - BATTERY

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ NA ]	[ P ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/11/87  
ASSESSMENT ID: CRWEQP-1302  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1302  
ITEM: OBS - SIGNAL CONDITIONER - ON/OFF SWITCH

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ NA ]	[ P ]	[    ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO EQUIVALENT NASA FMEA. SHOULD BE ADDED FOR COMPLETENESS AND TO COVER ALL POSSIBLE FAILURE MODES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-1303  
NASA FMEA #: OBS 2A

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1303  
ITEM: OBS - SIGNAL CONDITIONER - GAIN

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ NA]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ NA]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-1304  
NASA FMEA #: OBS 3A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1304  
ITEM: OBS - SIGNAL CONDITIONER - INPUT PORT

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ NA]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ NA]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-1305  
NASA FMEA #: OBS 3A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1305  
ITEM: OBS - SIGNAL CONDITIONER - OUTPUT PORT

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ NA ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ NA ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA FMEA 1305 IS MATCHED TO THE NASA FMEA FOR THE IVA CABLE DUE TO A MATCHING OF THE CAUSE DESCRIPTIONS - BENT PINS IN EITHER THE CABLE OR CABLE CONNECTOR.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/11/87  
ASSESSMENT ID: CRWEQP-1306  
NASA FMEA #: OBS 2A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1306  
ITEM: OBS - SIGNAL CONDITIONER - ESP

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ NA ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ NA ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THE IOA FMEA 1306 IS MATCHED TO THE IVA CRITICALITY NUMBERS OF THE NASA FMEA. IVA CRITICALITY REPRESENTS THE WORST CASE ANALYSIS AND IS CONSISTENT WITH IOA GROUND RULES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/11/87  
ASSESSMENT ID: CRWEQP-1307  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1307  
ITEM: OBS - BIOMED BELT

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[   /   ]	[   ]	[   ]	[   ]	[   ] *
IOA	[ 3 /3 ]	[   ]	[   ]	[   ]	[   ]
COMPARE	[ N /N ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]    [   ]    [   ]    [   ]    [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO EQUIVALENT NASA FMEA. NON-CRITICAL FAILURE SHOULD BE ADDED FOR COMPLETENESS.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/11/87  
ASSESSMENT ID: CRWEQP-1308  
NASA FMEA #: OBS 1B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1308  
ITEM: OBS - ELECTRODE HARNESS WIRES

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ NA]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ NA]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/11/87  
ASSESSMENT ID: CRWEQP-1309  
NASA FMEA #: OBS 1A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1309  
ITEM: OBS - ELECTRODES

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ NA]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ NA]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/11/87  
ASSESSMENT ID: CRWEQP-1310  
NASA FMEA #: OBS 1B

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1310  
ITEM: OBS - ELECTRODE HARNESS

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ NA]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ NA]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/11/87  
ASSESSMENT ID: CRWEQP-1311  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1311  
ITEM: OBS - ELECTRODE HARNESS - PIN CONNECTOR/PINS

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ NA ]	[ P ]	[    ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO EQUIVALENT NASA FMEA. SHOULD BE ADDED FOR COMPLETENESS AND TO COVER ALL POSSIBLE FAILURE MODES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/11/87  
ASSESSMENT ID: CRWEQP-1312  
NASA FMEA #: OBS 4A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1312  
ITEM: OBS - EVA BIOMED CABLE

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/11/87  
ASSESSMENT ID: CRWEQP-1313  
NASA FMEA #: OBS 4B

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1313  
ITEM: OBS - EVA BIOMED CABLE - PINS/PIN CONNECTOR

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/11/87  
ASSESSMENT ID: CRWEQP-1314  
NASA FMEA #: OBS 3A

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1314  
ITEM: OBS - IVA BIOMED CABLE

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ NA]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ NA]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/11/87  
ASSESSMENT ID: CRWEQP-1315  
NASA FMEA #: OBS 3A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1315  
ITEM: OBS - IVA BIOMED CABLE - PINS/PIN CONNECTOR

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ NA ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ NA ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/11/87  
ASSESSMENT ID: CRWEQP-1316  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1316  
ITEM: BIOMED CHANNEL SWITCH

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ NA ]	[ P ]	[ ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO EQUIVALENT NASA FMEA. NASA ANALYSIS DID NOT CONSIDER THIS  
ITEM AS A PART OF THE OBS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/11/87  
ASSESSMENT ID: CRWEQP-1317  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1317  
ITEM: BIOMED CHANNEL SWITCH

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO EQUIVALENT NASA FMEA. THE NASA OBS SYSTEM DESCRIPTION DID NOT INCLUDE THIS ITEM.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/11/87  
ASSESSMENT ID: CRWEQP-1318  
NASA FMEA #: OBS 3A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1318  
ITEM: BIOMED PANEL CABLE

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ NA]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ NA]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/11/87	NASA DATA:
ASSESSMENT ID: CRWEQP-1319	BASELINE [    ]
NASA FMEA #: OBS 3A	NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1319  
ITEM: BIOMED PANEL CABLE - PINS/PIN CONNECTOR

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS		CIL ITEM
		A            B            C		
NASA	[ 3 /2R ]	[ P ]    [ NA ]    [ P ]		[    ] *
IOA	[ 3 /2R ]	[ P ]    [ NA ]    [ P ]		[    ]
COMPARE	[    /    ]	[    ]    [    ]    [    ]		[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	
					(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/11/87  
ASSESSMENT ID: CRWEQP-1320  
NASA FMEA #: OBS 3A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1320  
ITEM: BIOMED PANEL CABLE - SHUTTLE INTERFACES

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ NA]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ NA]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/16/87  
ASSESSMENT ID: CRWEQP-1400  
NASA FMEA #: JSC22480-1A

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1400  
ITEM: PORTABLE FOOT RESTRAINT PLATFORM ASSEMBLY  
ADJUSTMENT KNOB

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/16/87  
ASSESSMENT ID: CRWEQP-1401  
NASA FMEA #: JSC22480-2A

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1401  
ITEM: PORTABLE FOOT RESTRAINT PLATFORM ASSEMBLY  
LOCKING PLATES

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/16/87  
ASSESSMENT ID: CRWEQP-1402  
NASA FMEA #: JSC22480-3A

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1402  
ITEM: PORTABLE FOOT RESTRAINT PLATFORM ASSEMBLY TOE  
BAR

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/16/87  
ASSESSMENT ID: CRWEQP-1403  
NASA FMEA #: JSC22480-4A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1403  
ITEM: PORTABLE FOOT RESTRAINT PLATFORM ASSEMBLY HEEL  
LOCK

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/16/87  
ASSESSMENT ID: CRWEQP-1404  
NASA FMEA #: JSC22480-4B

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1404  
ITEM: PORTABLE FOOT RESTRAINT PLATFORM ASSEMBLY HEEL  
LOCK

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/16/87  
ASSESSMENT ID: CRWEQP-1410  
NASA FMEA #: JSC22480-5A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1410  
ITEM: PORTABLE FOOT RESTRAINT TELESCOPING BOOM  
ASSEMBLY INBOARD CLAMP

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/16/87  
 ASSESSMENT ID: CRWEQP-1411  
 NASA FMEA #: JSC22480-6A

NASA DATA:  
 BASELINE [ ]  
 NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
 MDAC ID: 1411  
 ITEM: PORTABLE FOOT RESTRAINT TELESCOPING BOOM  
 ASSEMBLY OUTBOARD CLAMP

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

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 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
 INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/16/87  
ASSESSMENT ID: CRWEQP-1412  
NASA FMEA #: JSC22480-7A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1412  
ITEM: PORTABLE FOOT RESTRAINT TELESCOPING BOOM  
ASSEMBLY PLATFORM CLAMP

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/16/87  
ASSESSMENT ID: CRWEQP-1413  
NASA FMEA #: JSC22480-7B

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1413  
ITEM: PORTABLE FOOT RESTRAINT TELESCOPING BOOM  
ASSEMBLY PLATFORM CLAMP

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/17/87  
ASSESSMENT ID: CRWEQP-1414  
NASA FMEA #: JSC22480-8A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1414  
ITEM: PORTABLE FOOT RESTRAINT TELESCOPING BOOM  
ASSEMBLY QUICK RELEASE PIN

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/17/87  
ASSESSMENT ID: CRWEQP-1415  
NASA FMEA #: JSC22480-8B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1415  
ITEM: PORTABLE FOOT RESTRAINT TELESCOPING BOOM  
ASSEMBLY QUICK RELEASE PIN

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/17/87  
ASSESSMENT ID: CRWEQP-1416  
NASA FMEA #: JSC22480-9A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1416  
ITEM: PORTABLE FOOT RESTRAINT TELESCOPING BOOM  
ASSEMBLY INNER AND OUTER TUBES

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/17/87  
ASSESSMENT ID: CRWEQP-1417  
NASA FMEA #: JSC22480-10A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1417  
ITEM: PORTABLE FOOT RESTRAINT TELESOPING BOOM  
ASSEMBLY TORQUE LIMITER

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/17/87  
ASSESSMENT ID: CRWEQP-1418  
NASA FMEA #: JSC22480-10B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1418  
ITEM: PORTABLE FOOT RESTRAINT TELESCOPING BOOM  
ASSEMBLY TORQUE LIMITER

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/17/87  
ASSESSMENT ID: CRWEQP-1420  
NASA FMEA #: JSC22480-11A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1420  
ITEM: PORTABLE FOOT RESTRAINT CENTERLINE CLAMP  
ASSEMBLY QUICK RELEASE PIN

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/17/87  
ASSESSMENT ID: CRWEQP-1421  
NASA FMEA #: JSC22480-11B

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1421  
ITEM: PORTABLE FOOT RESTRAINT CENTERLINE CLAMP  
ASSEMBLY QUICK RELEASE PIN

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/17/87  
ASSESSMENT ID: CRWEQP-1422  
NASA FMEA #: JSC22480-12A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1422  
ITEM: PORTABLE FOOT RESTRAINT CENTERLINE CLAMP  
ASSEMBLY ALIGNMENT TABS

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/17/87  
ASSESSMENT ID: CRWEQP-1423  
NASA FMEA #: JSC22480-13A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1423  
ITEM: PORTABLE FOOT RESTRAINT CENTERLINE CLAMP  
ASSEMBLY CAPTURE JAWS

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/17/87  
ASSESSMENT ID: CRWEQP-1424  
NASA FMEA #: JSC22480-14A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1424  
ITEM: PORTABLE FOOT RESTRAINT CENTERLINE CLAMP  
ASSEMBLY CLAMP KNOB

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

C-2



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/17/87  
ASSESSMENT ID: CRWEQP-1430  
NASA FMEA #: JSC22480-15A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1430  
ITEM: PORTABLE FOOT RESTRAINT ARTICULATING SOCKET  
ASSEMBLY ADJUSTMENT KNOB

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/17/87  
ASSESSMENT ID: CRWEQP-1431  
NASA FMEA #: JSC22480-17A

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1431  
ITEM: PORTABLE FOOT RESTRAINT ARTICULATING SOCKET  
ASSEMBLY LOCKING PLATES

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/17/87  
ASSESSMENT ID: CRWEQP-1432  
NASA FMEA #: JSC22480-17A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 1432  
ITEM: PORTABLE FOOT RESTRAINT ARTICULATING SOCKET  
ASSEMBLY QUICK RELEASE PIN

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/18/87  
ASSESSMENT ID: CRWEQP-2100  
NASA FMEA #: 07-1B-SW2-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2100  
ITEM: EVA SLIDEWIRE ASSEMBLY-SLIDE

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NASA FMEA CONSIDERS THE POSSIBILITY OF CONNECTING TETHERS  
DIRECTLY TO THE SLIDEWIRE AND BYPASSING THE SLIDER. IOA AGREES  
WITH THIS PROCEDURE AND RECOMMENDS CHANGING CRITICALITY TO NASA  
FMEA 3/3.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/18/87  
ASSESSMENT ID: CRWEQP-2101  
NASA FMEA #: 07-1B-SW1-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2101  
ITEM: EVA SLIDEWIRE ASSEMBLY-SLIDE

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
	FLIGHT	HDW/FUNC	A	B	C	
NASA	[ 1 / 1 ]		[    ]	[    ]	[    ]	[ X ] *
IOA	[ 1 / 1 ]		[    ]	[    ]	[    ]	[ X ]
COMPARE	[    /    ]		[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/18/87  
ASSESSMENT ID: CRWEQP-2102  
NASA FMEA #: 07-1B-SW2-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2102  
ITEM: EVA SLIDEWIRE ASSEMBLY-SLIDE

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ NA ]	[ P ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA FMEA CONSIDERS THE POSSIBILITY OF HAVING THE CREWMEMBER ATTACH THE TETHER DIRECTLY TO THE SLIDEWIRE AND COMPLETELY BYPASSING THE SLIDE(R). IOA AGREES WITH THIS PROCEDURE AND RECOMMENDS CHANGING CRITS TO MATCH NASA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-2103  
NASA FMEA #: 07-1B-SW3-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2103  
ITEM: EVA SLIDEWIRE ASSEMBLY-STOP

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /2 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

## REMARKS:

NASA CONSIDERS THE STOP AS A REDUNDANT METHOD OF KEEPING THE EVA CREWMEMBER ATTACHED TO THE SLIDEWIRE. IF THE STOP BREAKS FREE AND THE SLIDEWIRE BREAKS OUT OF THE END FITTINGS, THEN THE SLIDE(R) CAN BECOME LOOSE. THIS CAN RESULT IN AN UNRESTRAINED CREWMAN. IOA AGREES WITH THIS ANALYSIS AND RECOMMENDS CHANGING THE CRITICALITIES TO MATCH NASA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-2104  
NASA FMEA #: 07-1B-SW6-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2104  
ITEM: EVA SLIDEWIRE-END FITTINGS

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-2105  
NASA FMEA #: 07-1B-SW6-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2105  
ITEM: EVA SLIDEWIRE ASSEMBLY-COTTER PIN

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

COTTER PIN IS CONSIDERED PART OF THE SLIDEWIRE END FITTING.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-2106  
NASA FMEA #: 07-1B-SW5-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2106  
ITEM: EVA SLIDEWIRE ASSEMBLY - QUICK DISCONNECT PIN

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA CONSIDERED THE ENTIRE DEPLOYMENT LINKAGE AND YOKE ASSEMBLY AS ONE ENTITY, WITH NO REDUNDANCIES. UNDER THIS ASSUMPTION, IOA AGREES WITH THE NASA CRITS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-2107  
NASA FMEA #: 07-1B-SW5-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2107  
ITEM: EVA SLIDEWIRE ASSEMBLY - QUICK DISCONNECT PIN

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA CONSIDERED THE ENTIRE DEPLOYMENT YOKE AND LINK AS ONE ENTITY. CONSIDERATION WAS NOT GIVEN TO CREW ACTIONS IN CLEARING THE JAM BY ALTERNATE METHODS. WITH THESE TWO ASSUMPTIONS, IOA AGREES WITH THE NASA CRITICALITIES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-2108  
NASA FMEA #: 07-1B-SW5-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2108  
ITEM: EVA SLIDEWIRE ASSEMBLY-SUPPORT STRUCTURE

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA CONSIDERED THE ENTIRE DEPLOYMENT LINK/YOKE ASSEMBLY AS ONE ENTITY. NO CONSIDERATION IS GIVEN TO CREW ACTIONS IN REDUCING THE CRITICALITY AND SOLVING THE PROBLEM. UNDER THESE TWO ASSUMPTIONS, IOA AGREES WITH THE NASA CRITICALITIES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-2109  
NASA FMEA #: 07-1B-SW1-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2109  
ITEM: EVA SLIDEWIRE

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
	FLIGHT	HDW/FUNC	A	B	C	
NASA	[ 1 / 1 ]		[    ]	[    ]	[    ]	[ X ] *
IOA	[ 1 / 1 ]		[    ]	[    ]	[    ]	[ X ]
COMPARE	[    /    ]		[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/18/87  
ASSESSMENT ID: CRWEQP-2200  
NASA FMEA #: JSC17067B-1A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2200  
ITEM: EXTENDED RANGE CREWMEMBER SAFETY TETHER-SMALL  
HOOK

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/18/87  
ASSESSMENT ID: CRWEQP-2201  
NASA FMEA #: JSC17067B-1A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2201  
ITEM: EXTENDED RANGE CREWMEMBER SAFETY TETHER-SMALL  
HOOK

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N /N ]	[    ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /3 ]	[    ]	[    ]	[    ]	[ D ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA FMEA HAS LUMPED THE FAILURE TO CLOSE INTO THE "HOOK BREAKS OR JAMS OPEN" FAILURE. THIS IS AN INAPPROPRIATE GROUPING SINCE JAMMING OPEN (OR FAILING TO CLOSE) IMPLIES THE HOOK IS NOT IN USE WHEN THE FAILURE OCCURS. FAILURE TO BE ABLE TO USE THE HOOK SHOULD NOT BE A 1/1, AND THE FMEA WILL BE DISCUSSED WITH THE SUBSYSTEM MANAGER.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/18/87  
ASSESSMENT ID: CRWEQP-2202  
NASA FMEA #: JSC17067B-1E

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2202  
ITEM: EXTENDED RANGE CREWMEMBER SAFETY TETHER-SMALL  
HOOK

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/18/87  
ASSESSMENT ID: CRWEQP-2203  
NASA FMEA #: JSC170671B-1A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2203  
ITEM: EXTENDED RANGE CREWMEMBER SAFETY TETHER-CABLE

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 1 /1 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/18/87  
ASSESSMENT ID: CRWEQP-2204  
NASA FMEA #: JSC17067B-1A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2204  
ITEM: ERCM SAFETY TETHER-CABLE ATTACH POINTS

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 1 /1 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/18/87  
ASSESSMENT ID: CRWEQP-2205  
NASA FMEA #: JSC17067-1A

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2205  
ITEM: EXTENDED RANGE CREWMEMBER SAFETY TETHER-REEL  
CASE

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 / 1 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 1 / 1 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/18/87  
ASSESSMENT ID: CRWEQP-2206  
NASA FMEA #: JSC17067B-1B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2206  
ITEM: ERCM SAFETY TETHER-CABLE TAKE UP ASSEMBLY

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/18/87  
ASSESSMENT ID: CRWEQP-2207  
NASA FMEA #: JSC17067B-1D

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2207  
ITEM: ERCM SAFETY TETHER-CABLE TAKE UP ASSEMBLY

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/18/87  
 ASSESSMENT ID: CRWEQP-2208  
 NASA FMEA #: JSC17067B-1D  
 NASA DATA:  
 BASELINE [ ]  
 NEW [ X ]  
 SUBSYSTEM: CREW EQUIPMENT  
 MDAC ID: 2208  
 ITEM: ERCM SAFETY TETHER-CABLE TAKE UP ASSEMBLY  
 LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
 INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/18/87  
ASSESSMENT ID: CRWEQP-2209  
NASA FMEA #: JSC17067B-1D

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2209  
ITEM: ERCM SAFETY TETHER-CABLE TAKE UP ASSEMBLY

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

CRITICALITY		REDUNDANCY SCREENS			CIL
FLIGHT					ITEM
HDW/FUNC		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/18/87  
ASSESSMENT ID: CRWEQP-2210  
NASA FMEA #: JSC17067B-1D

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2210  
ITEM: ERCM SAFETY TETHER-LOCK/UNLOCK SELECTOR SWITCH  
LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

REMARKS:

ADEQUATE [ ]  
INADEQUATE [ ]



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/18/87  
ASSESSMENT ID: CRWEQP-2211  
NASA FMEA #: JSC17067B-1D

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2211  
ITEM: ERCM SAFETY TETHER-LOCK/UNLOCK SELECTOR SWITCH

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/18/87  
ASSESSMENT ID: CRWEQP-2212  
NASA FMEA #: JSC17067B-1A

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2212  
ITEM: ERCM SAFETY TETHER-"D" RING

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 1 /1 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/18/87  
ASSESSMENT ID: CRWEQP-2213  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2213  
ITEM: ERCM SAFETY TETHER-"D" RING

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO CORRESPONDING NASA FMEA. 3/3 IS A NON-CRITICAL FAILURE, BUT IT SHOULD BE ADDED TO THE NASA DATA BASE FOR PURPOSES OF COMPLETENESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/18/87  
ASSESSMENT ID: CRWEQP-2300  
NASA FMEA #: JSC17067B-2A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2300  
ITEM: WAIST TETHER-HOOKS

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 / 1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 1 / 1 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/18/87  
ASSESSMENT ID: CRWEQP-2301  
NASA FMEA #: JSC17067B-2A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2301  
ITEM: WAIST TETHER-HOOKS

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N /N ]	[    ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /3 ]	[    ]	[    ]	[    ]	[ D ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THIS FAILURE IS UNDER NASA FMEA FAILURE "EITHER HOOK LATCH JAMS OPEN". MDAC FMEA CALLS "FAILS TO CLOSE" A NON-CRITICAL FAILURE SINCE TETHER IS NOT IN USE AT TIME OF FAILURE. FMEA WILL BE DISCUSSED WITH NASA SUBSYSTEM MANAGER.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/18/87	NASA DATA:
ASSESSMENT ID: CRWEQP-2302	BASELINE [    ]
NASA FMEA #: JSC17067B-2B	NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2302  
ITEM: WAIST TETHER-HOOKS

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/18/87  
ASSESSMENT ID: CRWEQP-2302A  
NASA FMEA #: JSC17067B-2C

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2302  
ITEM: WAIST TETHER-HOOKS

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/18/87  
ASSESSMENT ID: CRWEQP-2303  
NASA FMEA #: JSC17067B-2A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2303  
ITEM: WAIST TETHER-HOOKS

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:



APPENDIX C  
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/18/87  
ASSESSMENT ID: CRWEQP-2304  
NASA FMEA #: JSC17067B-2A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2304  
ITEM: WAIST TETHER-NOMEX WEBBING

LEAD ANALYST: S.K. SINCLAIR

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 / 1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 1 / 1 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/18/87  
ASSESSMENT ID: CRWEQP-2305  
NASA FMEA #: JSC17067B-2A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2305  
ITEM: WAIST TETHER-NOMEX WEBBING

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/18/87  
ASSESSMENT ID: CRWEQP-2306  
NASA FMEA #: JSC17067B-2A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 2306  
ITEM: WAIST TETHER-NOMEX WEBBING

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/30/87  
ASSESSMENT ID: CRWEQP-3100  
NASA FMEA #: TUBE CUTTER 6G

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3100  
ITEM: TUBE CUTTER CUTTING WHEEL

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/30/87  
ASSESSMENT ID: CRWEQP-3101  
NASA FMEA #: TUBE CUTTER 6I

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3101  
ITEM: TUBE CUTTER CUTTING WHEEL

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/30/87  
ASSESSMENT ID: CRWEQP-3102  
NASA FMEA #: TUBE CUTTER 6A

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3102  
ITEM: TUBE CUTTER CUTTING WHEEL SLIDE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/30/87	NASA DATA:
ASSESSMENT ID: CRWEQP-3103	BASELINE [    ]
NASA FMEA #: TUBE CUTTER 6F	NEW [ X ]
SUBSYSTEM: CREW EQUIPMENT	
MDAC ID: 3103	
ITEM: TUBE CUTTER RATCHET WHEEL (ON SMALL RATCHET)	
ASSEMBLY	

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS		CIL ITEM
		A	B	C
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	[    ]
					(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/30/87  
ASSESSMENT ID: CRWEQP-3104  
NASA FMEA #: TUBE CUTTER 6D

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3104  
ITEM: TUBE CUTTER SMALL RATCHET ASSEMBLY DIRECTION  
SELECTION TAB

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87                      NASA DATA:  
 ASSESSMENT ID: CRWEQP-3105                      BASELINE [   ]  
 NASA FMEA #: TUBE CUTTER 6D                      NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
 MDAC ID: 3105  
 ITEM: TUBE CUTTER SMALL RATCHET ASSEMBLY DIRECTION  
 SELECTION TAB

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

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 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
 INADEQUATE [   ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-3106  
NASA FMEA #: TUBE CUTTER 6C

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3106  
ITEM: TUBE CUTTER PAWL

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-3107  
NASA FMEA #: TUBE CUTTER 6J

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3107  
ITEM: TUBE CUTTER PAWL

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-3108  
NASA FMEA #: TUBE CUTTER 6K

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3108  
ITEM: TUBE CUTTER SPRING-ASSISTED RETENTION ROLLER (ON ROLLER LINK)

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-3109  
NASA FMEA #: TUBE CUTTER 6L

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3109  
ITEM: TUBE CUTTER ROLLER LINK

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-3110  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3110  
ITEM: TUBE CUTTER IDLER ROLLER

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[   /   ]	[   ]	[   ]	[   ]	[   ] *
IOA	[ 3 /3 ]	[   ]	[   ]	[   ]	[   ]
COMPARE	[ N /N ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]	[   ]	[   ]	[   ]	[   ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO EQUIVALENT NASA FMEA. IT SHOULD BE ADDED FOR PURPOSES OF COMPLETENESS AND WILL BE DISCUSSED WITH THE SUBSYSTEM MANAGER EVEN THOUGH THIS IS A NON-CRITICAL FAILURE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-3111  
NASA FMEA #: TUBE CUTTER 6B

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3111  
ITEM: TUBE CUTTER LARGE RATCHET HANDLE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
 ASSESSMENT ID: CRWEQP-3112  
 NASA FMEA #: TUBE CUTTER 6B

NASA DATA:  
 BASELINE [ ]  
 NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
 MDAC ID: 3112  
 ITEM: TUBE CUTTER SMALL RATCHET HANDLE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
 INADEQUATE [ ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-3113  
NASA FMEA #: TUBE CUTTER 6E

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3113  
ITEM: TUBE CUTTER SOFT-TIP SET SCREW

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
	FLIGHT	HDW/FUNC	A	B	C	
NASA	[ 3 / 3 ]		[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]		[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]		[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE:	11/24/87	NASA DATA:
ASSESSMENT ID:	CRWEQP-3200	BASELINE [    ]
NASA FMEA #:	CENTERLINE LATCH 4E	NEW [ X ]
SUBSYSTEM:	CREW EQUIPMENT	
MDAC ID:	3200	
ITEM:	CENTERLINE LATCH BYPASS TOOL SAFETY RELEASE	
LEAD ANALYST:	L. GRAHAM, S. SINCLAIR	

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

## RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	(ADD/DELETE)
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## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

## REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/24/87  
 ASSESSMENT ID: CRWEQP-3201  
 NASA FMEA #: CENTERLINE LATCH 4D

NASA DATA:  
 BASELINE [   ]  
 NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
 MDAC ID: 3201  
 ITEM: CENTERLINE LATCH BYPASS TOOL LATCH

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[   ]	[   ]	[   ]	[   ] *
IOA	[ 3 / 3 ]	[   ]	[   ]	[   ]	[   ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]   [   ]   [   ]   [   ]   [   ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
 INADEQUATE [   ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE:	11/24/87	NASA DATA:
ASSESSMENT ID:	CRWEQP-3202	BASELINE [    ]
NASA FMEA #:	CENTERLINE LATCH 4A	NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3202  
ITEM: CENTERLINE LATCH BYPASS TOOL LATCH

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 1 /1 ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

REMARKS:  
IOA AGREES WITH NASA ASSESSMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/24/87  
 ASSESSMENT ID: CRWEQP-3203  
 NASA FMEA #: CENTERLINE LATCH 4C

NASA DATA:  
 BASELINE [    ]  
 NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
 MDAC ID: 3203  
 ITEM: CENTERLINE LATCH BYPASS TOOL LATCH

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 / 1 ]	[    ]	[    ]	[ X ]	[ X ] *
IOA	[ 1 / 1 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[    /    ]	[    ]	[    ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
 INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/24/87  
 ASSESSMENT ID: CRWEQP-3204  
 NASA FMEA #: CENTERLINE LATCH 4F  
 NASA DATA:  
 BASELINE [ ]  
 NEW [ X ]  
 SUBSYSTEM: CREW EQUIPMENT  
 MDAC ID: 3204  
 ITEM: CENTERLINE LATCH BYPASS TOOL RATCHET WHEEL  
 LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[ ]	[ ]	[ ]	[ X ] *
IOA	[ 1 /1 ]	[ ]	[ ]	[ ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

## RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
 (ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
 INADEQUATE [ ]

## REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE:	11/24/87	NASA DATA:
ASSESSMENT ID:	CRWEQP-3205	BASELINE [    ]
NASA FMEA #:	CENTERLINE LATCH 4E	NEW [ X ]
SUBSYSTEM:	CREW EQUIPMENT	
MDAC ID:	3205	
ITEM:	CENTERLINE LATCH BYPASS TOOL RELEASE TRIGGER	
LEAD ANALYST:	L. GRAHAM, S. SINCLAIR	

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/24/87  
 ASSESSMENT ID: CRWEQP-3206  
 NASA FMEA #: CENTERLINE LATCH 4B  
 SUBSYSTEM: CREW EQUIPMENT  
 MDAC ID: 3206  
 ITEM: CENTERLINE LATCH BYPASS TOOL RATCHET HANDLE  
 LEAD ANALYST: L. GRAHAM, S. SINCLAIR

NASA DATA:  
 BASELINE [    ]  
 NEW [ X ]

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 / 1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 1 / 1 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

## RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
 (ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
 INADEQUATE [    ]

## REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/24/87  
ASSESSMENT ID: CRWEQP-3207  
NASA FMEA #: CENTERLINE LATCH 4D

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3207  
ITEM: CENTERLINE LATCH BYPASS TOOL RELEASE CATCH

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/24/87  
ASSESSMENT ID: CRWEQP-3208  
NASA FMEA #: CENTERLINE LATCH 4D

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3208  
ITEM: CENTERLINE LATCH BYPASS TOOL SAFETY RELEASE TAB

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

## APPENDIX C

### ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/24/87  
ASSESSMENT ID: CRWEQP-3300  
NASA FMEA #: 3-POINT LATCH 5B

NASA DATA:  
 BASELINE [    ]  
 NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3300  
ITEM: 3-POINT LATCH TOOL RATCHET HANDLE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

**ASSESSMENT:**

CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
FLIGHT HDW/FUNC		A	B	C	
NASA	[ 1 /1 ]	[ ]	[ ]	[ ]	[ X ] *
IOA	[ 1 /1 ]	[ ]	[ ]	[ ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]   [   ]   [   ]   [   ]   [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS :

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-3301  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3301  
ITEM: 3-POINT LATCH TOOL HOOK

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 1 / 1 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 1 / 1 ]	[    ]	[    ]	[    ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO EQUIVALENT NASA FMEA. SHOULD BE ADDED TO NASA DATA BASE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/24/87  
 ASSESSMENT ID: CRWEQP-3302  
 NASA FMEA #: 3-POINT LATCH 5A  
 NASA DATA:  
 BASELINE [ ]  
 NEW [ X ]  
 SUBSYSTEM: CREW EQUIPMENT  
 MDAC ID: 3302  
 ITEM: 3-POINT LATCH TOOL RATCHET WHEEL SELECTOR TAB  
 LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[ ]	[ ]	[ ]	[ X ] *
IOA	[ 1 /1 ]	[ ]	[ ]	[ ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
 INADEQUATE [ ]

REMARKS:

## APPENDIX C

### ASSESSMENT WORKSHEET

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ASSESSMENT DATE: 11/24/87          NASA DATA:
ASSESSMENT ID:   CRWEQP-3303       BASELINE [    ]
NASA FMEA #:     CENTERLINE LATCH 5A NEW [ X ]

SUBSYSTEM:       CREW EQUIPMENT
MDAC ID:         3303
ITEM:            3-POINT LATCH TOOL RATCHET WHEEL SELECTOR TAB

LEAD ANALYST:    L. GRAHAM, S. SINCLAIR

```

### ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[ ]	[ ]	[ ]	[ X ] *
IOA	[ 1 /1 ]	[ ]	[ ]	[ ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

**RECOMMENDATIONS:** (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS :

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/24/87                      NASA DATA:  
 ASSESSMENT ID: CRWEQP-3304                      BASELINE [    ]  
 NASA FMEA #: CENTERLINE LATCH 5C                      NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
 MDAC ID: 3304  
 ITEM: 3-POINT LATCH TOOL RATCHET WHEEL

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
 INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-3305  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3305  
ITEM: 3-POINT LATCH TOOL ROLLER SHOE RELEASE HANDLE  
LATCH

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

## RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO EQUIVALENT NASA FMEA BUT SHOULD BE ADDED FOR PURPOSES OF  
COMPLETENESS.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/24/87                      NASA DATA:  
 ASSESSMENT ID: CRWEQP-3306                      BASELINE [    ]  
 NASA FMEA #: CENTERLINE LATCH 5D                      NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
 MDAC ID: 3306  
 ITEM: 3-POINT LATCH TOOL ROLLER SHOE RELEASE HANDLE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
 INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87	NASA DATA:
ASSESSMENT ID: CRWEQP-3307	BASELINE [    ]
NASA FMEA #: 3-POINT LATCH 5F	NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3307  
ITEM: 3-POINT LATCH TOOL COMPENSATOR ASSEMBLY

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ] (ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87                      NASA DATA:  
 ASSESSMENT ID: CRWEQP-3308                      BASELINE [    ]  
 NASA FMEA #: 3-POINT LATCH 5E                      NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
 MDAC ID: 3308  
 ITEM: 3-POINT LATCH TOOL ROLLER SHOE ASSEMBLY

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
 INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/22/87	NASA DATA:
ASSESSMENT ID: CRWEQP-3400	BASELINE [    ]
NASA FMEA #: EVA WINCH 3A	NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3400  
ITEM: EVA WINCH AND MOUNT ASSEMBLY HOOK

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/22/87  
ASSESSMENT ID: CRWEQP-3401  
NASA FMEA #: EVA WINCH 3G

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3401  
ITEM: EVA WINCH AND MOUNT ASSEMBLY RATCHET HANDLE  
CONTROL LEVER

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/22/87  
ASSESSMENT ID: CRWEQP-3402  
NASA FMEA #: EVA WINCH 3F

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3402  
ITEM: EVA WINCH AND MOUNT ASSEMBLY RATCHET HANDLE  
CONTROL LEVER

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]	[   ]	[   ]	[   ]	[   ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

FOR PURPOSES OF THIS FMEA, THE RATCHET HANDLE CONTROL LEVER CAN BE CONSIDERED AS A PART OF THE RATCHET ASSEMBLY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/22/87  
ASSESSMENT ID: CRWEQP-3403  
NASA FMEA #: EVA WINCH 3E

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3403  
ITEM: EVA WINCH AND MOUNT ASSEMBLY LARGE CONTROL  
HANDLE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/22/87  
ASSESSMENT ID: CRWEQP-3404  
NASA FMEA #: EVA WINCH 3F

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3404  
ITEM: EVA WINCH AND MOUNT ASSEMBLY LARGE CONTROL  
HANDLE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/22/87  
ASSESSMENT ID: CRWEQP-3405  
NASA FMEA #: EVA WINCH 3E

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3405  
ITEM: EVA WINCH AND MOUNT RATCHET HANDLE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]    [   ]    [   ]    [   ]    [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/22/87	NASA DATA:
ASSESSMENT ID: CRWEQP-3406	BASELINE [    ]
NASA FMEA #: EVA WINCH 3C	NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3406  
ITEM: EVA WINCH AND MOUNT ASSEMBLY ROPE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]	[   ]	[   ]	[   ]	[   ]	
					(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[   ]
INADEQUATE	[   ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/22/87  
ASSESSMENT ID: CRWEQP-3407  
NASA FMEA #: EVA WINCH 3B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3407  
ITEM: EVA WINCH AND MOUNT ASSEMBLY ROPE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]    [   ]    [   ]    [   ]    [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/22/87  
ASSESSMENT ID: CRWEQP-3408  
NASA FMEA #: EVA WINCH 3I

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3408  
ITEM: EVA WINCH AND MOUNT ASSEMBLY TORQUE LIMITER

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/22/87  
ASSESSMENT ID: CRWEQP-3409  
NASA FMEA #: EVA WINCH 3F

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3409  
ITEM: EVA WINCH AND MOUNT ASSEMBLY RATCHET WHEEL

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/22/87  
ASSESSMENT ID: CRWEQP-3410  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3410  
ITEM: EVA WINCH AND MOUNT ASSEMBLY ROPE ROLLER

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO EQUIVALENT NASA FMEA BUT IT SHOULD BE ADDED FOR PURPOSES OF COMPLETENESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/22/87  
ASSESSMENT ID: CRWEQP-3411  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3411  
ITEM: EVA WINCH AND MOUNT ASSEMBLY ROPE ROLLER

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO EQUIVALENT NASA FMEA BUT IT SHOULD BE ADDED FOR PURPOSES OF  
COMPLETENESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/22/87  
ASSESSMENT ID: CRWEQP-3412  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3412  
ITEM: EVA WINCH AND MOUNT ASSEMBLY HANDLE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO EQUIVALENT NASA FMEA BUT IT SHOULD BE ADDED FOR PURPOSES OF  
COMPLETENESS.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/22/87  
ASSESSMENT ID: CRWEQP-3413  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3413  
ITEM: EVA WINCH AND MOUNT ASSEMBLY MOUNTING PLATE  
ASSEMBLY

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO EQUIVALENT NASA FMEA BUT IT SHOULD BE ADDED FOR PURPOSES OF  
COMPLETENESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/22/87	NASA DATA:
ASSESSMENT ID: CRWEQP-3414	BASELINE [    ]
NASA FMEA #: EVA WINCH 3H	NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3414  
ITEM: EVA WINCH AND MOUNT ASSEMBLY GEARS

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY	SCREENS		CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]	[   ]	[   ]	[   ]	[   ] (ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[   ]
INADEQUATE	[   ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/22/87  
ASSESSMENT ID: CRWEQP-3415  
NASA FMEA #: EVA WINCH 2D

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3415  
ITEM: EVA WINCH AND MOUNT ASSEMBLY GEARS

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]    [   ]    [   ]    [   ]    [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/22/87	NASA DATA:
ASSESSMENT ID: CRWEQP-3416	BASELINE [    ]
NASA FMEA #: EVA WINCH 30	NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3416  
ITEM: EVA WINCH AND MOUNT ASSEMBLY PIP PIN

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS		CIL ITEM
		A	B	C
NASA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]
IOA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]	[   ]	[   ]	[   ]	[   ] (ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[   ]
INADEQUATE	[   ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/22/87	NASA DATA:
ASSESSMENT ID: CRWEQP-3417	BASELINE [    ]
NASA FMEA #: EVA WINCH 3C	NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3417  
ITEM: EVA WINCH AND MOUNT ASSEMBLY ROPE SPOOL

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY	SCREENS		CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]	[   ]	[   ]	[   ]	[   ]	[   ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[   ]
INADEQUATE	[   ]

## REMARKS:

THE MECHANICAL MALFUNCTION CAUSE OF THE NASA FMEA 3C WILL BE DUE TO A MALFUNCTION IN THE ROPE STOOL. THEREFORE, THIS FMEA IS PART OF NASA 3C.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87                      NASA DATA:  
 ASSESSMENT ID: CRWEQP-3500                      BASELINE [    ]  
 NASA FMEA #: WINCH ADAPTER 1C                      NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
 MDAC ID: 3500  
 ITEM: EVA WINCH ADAPTER ASSEMBLY ROPE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ]    [ ]    [ ]    [ ]    [ ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
 INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE:	11/19/87	NASA DATA:
ASSESSMENT ID:	CRWEQP-3501	BASELINE [    ]
NASA FMEA #:	WINCH ADAPTER 1A	NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3501  
ITEM: EVA WINCH ADAPTER ASSEMBLY ROPE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]	[   ]

## RECOMMENDATIONS: (If different from NASA)

[   /   ]	[   ]	[   ]	[   ]	[   ]
				(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[ X ]
INADEQUATE	[   ]

## REMARKS:

```

ASSESSMENT DATE: 11/19/87
ASSESSMENT ID: CRWEQP-3502
NASA FMEA #: WINCH ADAPTER 1D

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT
MDAC ID: 3502
ITEM: EVA WINCH ADAPTER ASSEMBLY HOOK

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

```

CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
FLIGHT	HDW/FUNC	A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

[   /   ]      [   ]      [   ]      [   ]      [   ]  
(ADD/DELETE)

ADEQUATE [ X ]  
INADEQUATE [ ]

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# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-3503  
NASA FMEA #: WINCH ADAPTER 1E

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3503  
ITEM: EVA WINCH ADAPTER ASSEMBLY HOOK LATCH

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
 ASSESSMENT ID: CRWEQP-3503A  
 NASA FMEA #: WINCH ADAPTER 1F

NASA DATA:  
 BASELINE [    ]  
 NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
 MDAC ID: 3503  
 ITEM: EVA WINCH ADAPTER ASSEMBLY HOOK LATCH

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
 INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87	NASA DATA:
ASSESSMENT ID: CRWEQP-3504	BASELINE [    ]
NASA FMEA #: WINCH ADAPTER 1B	NEW [ X ]
SUBSYSTEM: CREW EQUIPMENT	
MDAC ID: 3504	
ITEM: EVA WINCH ADAPTER ASSEMBLY ROPE CAM CLEAT	
LEAD ANALYST: L. GRAHAM, S. SINCLAIR	

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS		CIL ITEM
		A            B            C		
NASA	[ 2 /1R ]	[ P ]    [ P ]    [ P ]		[ X ] *
IOA	[ 2 /1R ]	[ P ]    [ P ]    [ P ]		[ X ]
COMPARE	[   /   ]	[   ]    [   ]    [   ]		[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]	[   ]	[   ]	[   ]	[   ]	[   ]
					(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[ X ]
INADEQUATE	[   ]

REMARKS:

## APPENDIX C

### ASSESSMENT WORKSHEET

```

ASSESSMENT DATE: 11/19/87      NASA DATA:
ASSESSMENT ID:   CRWEQP-3505   BASELINE [    ]
NASA FMEA #:     WINCH ADAPTER 1A      NEW [ X ]

SUBSYSTEM:       CREW EQUIPMENT
MDAC ID:         3505
ITEM:            EVA WINCH ADAPTER ASSEMBLY ROPE CAM CLEAT

LEAD ANALYST:    L. GRAHAM, S. SINCLAIR

```

**ASSESSMENT:**

CRITICALITY		REDUNDANCY SCREENS			CIL
FLIGHT					ITEM
HDW/FUNC		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

**RECOMMENDATIONS:** (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
INADEQUATE [ ]

REMARKS :

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
 ASSESSMENT ID: CRWEQP-3506  
 NASA FMEA #: WINCH ADAPTER 1G

NASA DATA:  
 BASELINE [ ]  
 NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
 MDAC ID: 3506  
 ITEM: EVA WINCH ADAPTER ASSEMBLY ROPE GUIDE PLATE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

CRITICALITY FLIGHT HDW/FUNC		REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

## RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
 (ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]  
 INADEQUATE [ ]

## REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-3507  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3507  
ITEM: EVA WINCH ADAPTER ASSEMBLY ROPE ROLLER

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

## RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO EQUIVALENT NASA FMEA. 3/3 RANKING IS A NON-CRITICAL FAILURE,  
BUT IT SHOULD BE ADDED TO THE NASA DATA BASE FOR COMPLETENESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-3508  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3508  
ITEM: EVA WINCH ADAPTER ASSEMBLY ROPE ROLLER

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO EQUIVALENT NASA FMEA. FAILURE IS A NON-CRITICAL FAILURE BUT SHOULD BE ADDED TO THE NASA DATA BASE FOR COMPLETENESS.

```

ASSESSMENT DATE: 11/19/87
ASSESSMENT ID: CRWEQP-3509
NASA FMEA #: WINCH ADAPTER 1A

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT
MDAC ID: 3509
ITEM: EVA WINCH ADAPTER ASSEMBLY ROPE SPOOL

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

```

CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
	FLIGHT HDW/FUNC	A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

ADEQUATE [ X ]  
INADEQUATE [ ]

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# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/14/87  
ASSESSMENT ID: CRWEQP-3600  
NASA FMEA #: PRD-5B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3600  
ITEM: PAYLOAD RETENTION DEVICE ASSEMBLY RATCHET HANDLE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ N /    ]	[    ]	[    ]	[    ]	[    ]

## RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA AGREES WITH NASA CRITICALITIES. TWO DEVICES ARE FLOWN ON EVERY FLIGHT PLUS RMS JETTISON CAPABILITY MUST BE CONSIDERED AVAILABLE GIVING A HARDWARE CRITICALITY OF "3" INSTEAD OF "2". LOSS OF ALL REDUNDANCY HOWEVER, CAN RESULT IN A LOSS OF CREW AND/OR VEHICLE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/14/87  
ASSESSMENT ID: CRWEQP-3601  
NASA FMEA #: PRD-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3601  
ITEM: PAYLOAD RETENTION DEVICE ASSEMBLY HOOK

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 / 1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 1 / 1 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/14/87  
ASSESSMENT ID: CRWEQP-3602  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3602  
ITEM: PAYLOAD RETENTION DEVICE ASSEMBLY HOOK LATCH

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

UPON CLOSER EXMANITAION, IOA FEELS THAT A STRUCTURAL FAILURE OF THE HOOK LATCH IS A NON-CREDIBLE FAILURE AND SHOULD BE ELIMINATED FROM FURTHER CONSIDERATION.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/14/87  
ASSESSMENT ID: CRWEQP-3603  
NASA FMEA #: PRD-3A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3603  
ITEM: PAYLOAD RETENTION DEVICE ASSEMBLY HOOK LATCH

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[    ]

## RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ]      [ P ]      [ P ]      [ P ]      [    ]  
(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

DISAGREE WITH NASA CRITICALITY AND MODIFY ORIGINAL IOA CRITICALITY. LATCH HOOK FAILING TO CLOSE WILL CAUSE LOSS OF HOOK FUNCTION. HOWEVER, TWO DEVICES ARE FLOWN ON EACH FLIGHT PLUS RMS JETTISON IS STILL AVAILABLE. SINCE THIS TOOL IS USED ONLY AS AN RMS TIE DOWN DEVICE, THERE ARE SUFFICIENT REDUNDANCIES TO LOWER HARDWARE CRITICALITY TO A "3". THE FUNCTIONAL CRITICALITY REMAINS A 1R SINCE LOSS OF ALL REDUNDANCY CAN RESULT IN THE LOSS OF CREW/VEHICLE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/87  
ASSESSMENT ID: CRWEQP-3604  
NASA FMEA #: PRD-5A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3604  
ITEM: PAYLOAD RETENTION DEVICE ASSEMBLY RATCHET GEAR

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 / 1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 1 / 1 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/87  
ASSESSMENT ID: CRWEQP-3605  
NASA FMEA #: PRD-5A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3605  
ITEM: PAYLOAD RETENTION DEVICE ASSEMBLY RATCHET GEAR

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/87  
ASSESSMENT ID: CRWEQP-3606  
NASA FMEA #: PRD-1A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3606  
ITEM: PAYLOAD RETENTION DEVICE ASSEMBLY KEVLAR WEB  
STRAP

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/87  
ASSESSMENT ID: CRWEQP-3606A  
NASA FMEA #: PRD-1B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3606  
ITEM: PAYLOAD RETENTION DEVICE ASSEMBLY KEVLAR WEB STRAP

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA FMEAs SPLIT THE ANALYSIS FOR THE KEVLAR STRAPS INTO ONE FOR THE LONG STRAP AND ONE FOR THE SHORT STRAP.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/87  
ASSESSMENT ID: CRWEQP-3607  
NASA FMEA #: PRD-7

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3607  
ITEM: PAYLOAD RETENTION DEVICE ASSEMBLY REACTION  
HANDLE ASSEMBLY

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/87  
ASSESSMENT ID: CRWEQP-3608  
NASA FMEA #: PRD-5A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3608  
ITEM: PAYLOAD RETENTION DEVICE ASSEMBLY RATCHET SHAFT  
PIN

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 1 /1 ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

SCREENS ARE NOT REQUIRED FOR A 1/1 CRITICALITY AND SHOULD BE  
IGNORED UNDER IOA ANALYSIS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/87  
ASSESSMENT ID: CRWEQP-3609  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3609  
ITEM: PAYLOAD RETENTION DEVICE ASSEMBLY WEB ROLLER  
ASSEMBLY

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO EQUIVALENT NASA FMEA. SHOULD BE ADDED FOR COMPLETENESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/87  
ASSESSMENT ID: CRWEQP-3610  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3610  
ITEM: PAYLOAD RETENTION DEVICE ASSEMBLY WEB ROLLER  
ASSEMBLY

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N / N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO EQUIVALENT NASA FMEA. SHOULD BE ADDED FOR PURPOSES OF  
COMPLETENESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/87  
ASSESSMENT ID: CRWEQP-3611  
NASA FMEA #: PRD-4A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3611  
ITEM: PAYLOAD RETENTION DEVICE ASSEMBLY SPRING STORAGE REEL

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

AGREE WITH NASA CRITICALITY. CHANGE IOA TO MATCH NASA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/87  
ASSESSMENT ID: CRWEQP-3612  
NASA FMEA #: PRD-5A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3612  
ITEM: PAYLOAD RETENTION DEVICE ASSEMBLY RATCHET LATCH

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/87  
ASSESSMENT ID: CRWEQP-3613  
NASA FMEA #: PRD-5A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3613  
ITEM: PAYLOAD RETENTION DEVICE ASSEMBLY RATCHET LATCH

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/87  
ASSESSMENT ID: CRWEQP-3614  
NASA FMEA #: PRD-5A

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3614  
ITEM: PAYLOAD RETENTION DEVICE ASSEMBLY RATCHET  
ASSEMBLY RELEASE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[ ]	[ ]	[ ]	[ X ] *
IOA	[ 1 /1 ]	[ ]	[ ]	[ ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/87  
ASSESSMENT ID: CRWEQP-3615  
NASA FMEA #: PRD-5B

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3615  
ITEM: PAYLOAD RETENTION DEVICE ASSEMBLY RATCHET  
ASSEMBLY RELEASE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[ ]	[ ]	[ ]	[ X ] *
IOA	[ 1 /1 ]	[ ]	[ ]	[ ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/87  
ASSESSMENT ID: CRWEQP-3616  
NASA FMEA #: PRD-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3616  
ITEM: PAYLOAD RETENTION DEVICE ASSEMBLY HOOK/WEB  
CONNECT PIN

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/17/87  
 ASSESSMENT ID: CRWEQP-3700  
 NASA FMEA #: EVA CABLE CUTTER 1A

NASA DATA:  
 BASELINE [    ]  
 NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
 MDAC ID: 3700  
 ITEM: EVA CABLE CUTTER

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
 INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/17/87  
ASSESSMENT ID: CRWEQP-3701  
NASA FMEA #: EVA CABLE CUTTER 1C

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3701  
ITEM: EVA CABLE CUTTER

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/17/87  
 ASSESSMENT ID: CRWEQP-3702  
 NASA FMEA #: EVA CABLE CUTTER 1B

NASA DATA:  
 BASELINE [    ]  
 NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
 MDAC ID: 3702  
 ITEM: EVA CABLE CUTTER

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
 INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE:	11/19/87	NASA DATA:
ASSESSMENT ID:	CRWEQP-3800	BASELINE [    ]
NASA FMEA #:	SNATCH BLOCK 2C	NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3800  
ITEM: SNATCH BLOCK ASSEMBLY HOOK LATCH

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

## REMARKS:

THIS FAILURE IS FOR A HOOK LATCH FAILING TO OPEN (OR JAMMING CLOSED). SINCE THE ITEM IS NOT IN USE AT THE TIME OF THE FAILURE AND ALTERNATE MEANS OF SECURING ARE AVAILABLE, THE 3/3 CRITICALITY IS MORE REALISTIC. THEREFORE, IOA RECOMMEND CHANGING THE CRITICALITY OF THIS ITEM TO THE NASA CRITICALITY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE:	11/19/87	NASA DATA:
ASSESSMENT ID:	CRWEQP-3801	BASELINE [    ]
NASA FMEA #:	SNATCH BLOCK 2F	NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3801  
ITEM: SNATCH BLOCK ASSEMBLY HOOK SWIVEL

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]	[   ]	[   ]	[   ]	[   ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

REMARKS:

## APPENDIX C

### ASSESSMENT WORKSHEET

```

ASSESSMENT DATE: 11/19/87          NASA DATA:
ASSESSMENT ID:   CRWEQP-3802       BASELINE [    ]
NASA FMEA #:     SNATCH BLOCK 2D    NEW [ X ]

SUBSYSTEM:       CREW EQUIPMENT
MDAC ID:         3802
ITEM:            SNATCH BLOCK ASSEMBLY RIGHT SPRING PLUNGER

LEAD ANALYST:    L. GRAHAM, S. SINCLAIR

```

### ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ ]	[ ]	[ ]	*
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	
COMPARE	[ / ]	[ ]	[ ]	[ ]	

**RECOMMENDATIONS:** (If different from NASA)

[   /   ]   [   ]   [   ]   [   ]   [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NOTE: NASA FMEA WRITTEN FOR LEFT SPRING PLUNGER. LEFT AND RIGHT PLUNGERS IDENTICAL AND CAN BE GROUPED TOGETHER.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87	NASA DATA:
ASSESSMENT ID: CRWEQP-3802A	BASELINE [    ]
NASA FMEA #: SNATCH BLOCK 2E	NEW [ X ]
SUBSYSTEM: CREW EQUIPMENT	
MDAC ID: 3802	
ITEM: SNATCH BLOCK ASSEMBLY RIGHT SPRING PLUNGER	
LEAD ANALYST: L. GRAHAM, S. SINCLAIR	

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

## REMARKS:

NOTE: NASA FMEA ACTUALLY WRITTEN FOR LEFT SPRING PLUNGER. LEFT AND RIGHT PLUNGERS IDENTICAL.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE:	11/19/87	NASA DATA:
ASSESSMENT ID:	CRWEQP-3803	BASELINE [    ]
NASA FMEA #:	SNATCH BLOCK 2D	NEW [ X ]
SUBSYSTEM:	CREW EQUIPMENT	
MDAC ID:	3803	
ITEM:	SNATCH BLOCK ASSEMBLY LEFT SPRING PLUNGER	
LEAD ANALYST:	L. GRAHAM, S. SINCLAIR	

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

## RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

## REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87	NASA DATA:
ASSESSMENT ID: CRWEQP-3803A	BASELINE [    ]
NASA FMEA #: SNATCH BLOCK 2D	NEW [ X ]
SUBSYSTEM: CREW EQUIPMENT	
MDAC ID: 3803	
ITEM: SNATCH BLOCK ASSEMBLY LEFT SPRING PLUNGER	
LEAD ANALYST: L. GRAHAM, S. SINCLAIR	

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS		CIL ITEM
		A            B            C		
NASA	[ 3 / 3 ]	[   ]    [   ]    [   ]		[   ] *
IOA	[ 3 / 3 ]	[   ]    [   ]    [   ]		[   ]
COMPARE	[   /   ]	[   ]    [   ]    [   ]		[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]	[   ]    [   ]    [   ]	[   ]
		(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[   ]
INADEQUATE	[   ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-3804  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3804  
ITEM: SNATCH BLOCK ASSEMBLY PULL WIRE BALL END

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO EQUIVALENT NASA FMEA. A 3/3 CRITICALITY IS A NON-CRITICAL FAILURE, BUT IT SHOULD BE ADDED TO THE NASA DATA BASE FOR COMPLETENESS.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-3806  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3806  
ITEM: SNATCH BLOCK ASSEMBLY PULLEY WHEEL

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO EQUIVALENT NASA FMEA, BUT IT SHOULD BE ADDED FOR COMPLETENESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-3807  
NASA FMEA #: SNATCH BLOCK 2A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 3807  
ITEM: SNATCH BLOCK ASSEMBLY HOOK

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/21/87  
ASSESSMENT ID: CRWEQP-4100  
NASA FMEA #: 07-5-ML2-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 4100  
ITEM: TURNBUCKLE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/21/87  
ASSESSMENT ID: CRWEQP-4101  
NASA FMEA #: 07-5-ML2-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 4101  
ITEM: TURNBUCKLE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/14/88  
ASSESSMENT ID: CRWEQP-4200  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 4200  
ITEM: LOCKER REMOVAL TOOL

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

AFTER DISCUSSION WITH NASA, IOA AGREES THAT THIS IS NOT A CREDIBLE FAILURE AND SHOULD BE DELETED.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-4300  
NASA FMEA #: IFM 1B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 4300  
ITEM: IFM BREAKOUT BOX INPUT POWER CONNECTOR

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-4301  
NASA FMEA #: IFM 1A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 4301  
ITEM: IFM BREAKOUT BOX INPUT POWER CONNECTOR

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-4302  
NASA FMEA #: IFM 2D

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 4302  
ITEM: IFM BREAKOUT BOX AUXILIARY ON/OFF SWITCH (SW1)

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-4303  
NASA FMEA #: IFM 2C

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 4303  
ITEM: IFM BREAKOUT BOX AUXILIARY ON/OFF SWITCH (SW1)

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-4304  
NASA FMEA #: IFM 2A

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 4304  
ITEM: IFM BREAKOUT BOX OUTPUT POWER CONNECTOR

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE:	11/19/87	NASA DATA:
ASSESSMENT ID:	CRWEQP-4305	BASELINE [    ]
NASA FMEA #:	IFM 2B	NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 4305  
ITEM: IFM BREAKOUT BOX OUTPUT POWER CONNECTOR

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-4306  
NASA FMEA #: IFM 3A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 4306  
ITEM: IFM BREAKOUT BOX FUSE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

CRITICALITY		REDUNDANCY SCREENS			CIL
FLIGHT					ITEM
HDW/FUNC		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-4306A  
NASA FMEA #: IFM 4A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 4306  
ITEM: IFM BREAKOUT BOX FUSE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-4307  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 4307  
ITEM: IFM BREAKOUT BOX FUSE HOLDER

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO EQUIVALENT NASA FMEA BUT EFFECT IS THE SAME AS THE FUSE FAILING OPEN OR OPENING PREMATURELY. BROKEN FUSE HOLDER IS PROBABLY AN UNREALISTIC FAILURE SINCE FUSE CAN BE TAPED IN PLACE. RECOMMEND DELETING THIS FMEA FROM FURTHER CONSIDERATION.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-4308  
NASA FMEA #: IFM 3C

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 4308  
ITEM: IFM BREAKOUT BOX AWG OUTPUT SELECT SWITCH (SW3)

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-4309  
NASA FMEA #: IFM 3B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 4309  
ITEM: IFM BREAKOUT BOX AWG OUTPUT SELECT SWITCH (SW3)

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-4310  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 4310  
ITEM: IFM BREAKOUT BOX PIN CONNECTION OUTLET

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO EQUIVALENT NASA FMEA. THE IOA FAILURE IS NON-CREDIBLE AND SHOULD BE ELIMINATED FROM FURTHER CONSIDERATION. TO HAVE THE FAILURE OCCUR WOULD REQUIRE UNREALISTIC CHAIN OF EVENTS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-4311  
NASA FMEA #: IFM 5A

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 4311  
ITEM: IFM BREAKOUT BOX PIN/WIRE HOLDING BRACKET

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87	NASA DATA:
ASSESSMENT ID: CRWEQP-4312	BASELINE [    ]
NASA FMEA #: IFM 4B	NEW [ X ]
SUBSYSTEM: CREW EQUIPMENT	
MDAC ID: 4312	
ITEM: IFM BREAKOUT BOX VARIABLE VOLTAGE POWER SUPPLY	
LEAD ANALYST: L. GRAHAM, S. SINCLAIR	

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ] (ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-4313  
NASA FMEA #: IFM 4B

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 4313  
ITEM: IFM BREAKOUT BOX VARIABLE VOLTAGE POWER SUPPLY

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

## APPENDIX C

### ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-4314  
NASA FMEA #: IFM 4D

**NASA DATA:**  
**BASELINE** [     ]  
**NEW** [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 4314  
ITEM: IFM BREAKOUT BOX 28 V/VARIABLE SWITCH (SW2)

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

**ASSESSMENT:**

CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
FLIGHT	HDW/FUNC	A	B	C	
NASA	[ 3 /3 ]	[ ]	[ ]	[ ]	*
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	
COMPARE	[ / ]	[ ]	[ ]	[ ]	

**RECOMMENDATIONS:** (If different from NASA)

[   /   ]   [   ]   [   ]   [   ]   [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS :

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-4315  
NASA FMEA #: IFM 4C

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 4315  
ITEM: IFM BREAKOUT BOX 28 V/VARIABLE SWITCH (SW2)

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-4316  
NASA FMEA #: IFM 4E

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 4316  
ITEM: IFM BREAKOUT BOX AWG OUTPUT SELECT SWITCH (SW4)

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-4317  
NASA FMEA #: IFM 4F

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 4317  
ITEM: IFM BREAKOUT BOX AWG OUTPUT SELECT SWITCH (SW4)

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5101  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5101  
ITEM: GALLEY WATER HEATER CIRCUIT BREAKER

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NASA CONSIDERED CIRCUIT BREAKERS TO BE A PART OF THE ORBITER AND DID NOT INCLUDE THEIR FAILURE MODES IN THE ANALYSIS OF THE GALLEY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5102  
NASA FMEA #: 2.1.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5102  
ITEM: GALLEY DC POWER BUS B SWITCH

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5103  
NASA FMEA #: 2.1.2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5103  
ITEM: GALLEY DC POWER BUS B SWITCH

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5104  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5104  
ITEM: GALLEY DC POWER BUS B SWITCH

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NASA DOES NOT FEEL THIS IS A CREDIBLE FAILURE MODE FOR THIS TYPE  
OF SWITCH. IOA FMEA 5104 WILL BE CANCELLED.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5105  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5105  
ITEM: POTABLE WATER HEATER TELEMETRY

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

ERRONEOUS OUTPUT OF THE TELEMETRY WILL HAVE NO EFFECT ON THE  
ACTUAL OPERATION OF THE GALLEY. THIS FAILURE WAS NOT INCLUDED IN  
NASA'S ANALYSIS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5106  
NASA FMEA #: 1.4.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5106  
ITEM: RECIRCULATION PUMP

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5107  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5107  
ITEM: RECIRCULATION PUMP

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

FAILURE OF P1 TO STOP WAS NOT CONSIDERED TO BE A SIGNIFICANT  
FAILURE TO NASA AND WAS NOT INCLUDED IN THEIR ANALYSIS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5108  
NASA FMEA #: 2.13.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5108  
ITEM: RECIRCULATION THERMOSTAT

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5109  
NASA FMEA #: 2.13.2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5109  
ITEM: RECIRCULATION THERMOSTAT

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5110  
NASA FMEA #: 1.3.3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5110  
ITEM: HOT WATER TANK

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]
RECOMMENDATIONS: (If different from NASA)					
	[    /    ]	[    ]	[    ]	[    ]	[    ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5111  
NASA FMEA #: 2.9.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5111  
ITEM: WATER TANK HEATERS

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5112  
NASA FMEA #: 2.10.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5112  
ITEM: WATER TANK HEATERS

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THIS FAILURE HAS THE SAME RESULTS NASA 2.10.1 - WATER HEATER  
THERMOSTATS FAIL ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5113  
NASA FMEA #: 2.10.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5113  
ITEM: WATER TANK HEATER THERMOSTAT

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5114  
NASA FMEA #: 2.10.2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5114  
ITEM: WATER TANK HEATER THERMOSTAT

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5115  
NASA FMEA #: 1.15.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5115  
ITEM: HOT WATER TEMPERATURE GAUGE

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5116  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5116  
ITEM: GALLEY OVEN CIRCUIT BREAKER

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N / N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NASA CONSIDERED CIRCUIT BREAKERS TO BE A PART OF THE ORBITER AND DID NOT INCLUDE THEIR FAILURE MODES IN THE ANALYSIS OF THE GALLEY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5117  
NASA FMEA #: 2.2.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5117  
ITEM: GALLEY DC POWER BUS A SWITCH

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5118  
NASA FMEA #: 2.2.2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5118  
ITEM: GALLEY DC POWER BUS A SWITCH

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
	FLIGHT	HDW/FUNC	A	B	C	
NASA	[ 3 / 3 ]		[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]		[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]		[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5119  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5119  
ITEM: GALLEY DC POWER BUS A SWITCH

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [ D ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA DOES NOT CONSIDER A PARTIAL OUTPUT TO BE A CREDIBLE FAILURE  
FOR THIS TYPE OF SWITCH. THIS FMEA (5119) WILL DELETED.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5120  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5120  
ITEM: FOOD OVEN TELEMETRY

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

ERRONEOUS OUTPUT OF THE TELEMETRY WAS NOT CONSIDERED BY NASA TO  
BE A SIGNIFICANT FAILURE AND WAS NOT INCLUDED IN THEIR ANALYSIS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5121  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5121  
ITEM: GALLEY FAN CIRCUIT BREAKERS

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA CONSIDERED CIRCUIT BREAKERS TO BE A PART OF THE ORBITER AND DID NOT INCLUDE THEIR FAILURES IN THE ANALYSIS OF THE GALLEY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5122  
NASA FMEA #: 2.3.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5122  
ITEM: GALLEY OVEN FAN SWITCH

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5123  
NASA FMEA #: 2.3.2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5123  
ITEM: GALLEY OVEN FAN SWITCH

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
	FLIGHT	HDW/FUNC	A	B	C	
NASA	[ 3 /3 ]		[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]		[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]		[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5124  
NASA FMEA #: 2.8.1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5124  
ITEM: OVEN FAN - MOTOR

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5125  
NASA FMEA #: 2.8.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5125  
ITEM: OVEN FAN - MOTOR

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5126  
NASA FMEA #: 2.8.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5126  
ITEM: OVEN FAN - MOTOR

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5127  
NASA FMEA #: 2.8.2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5127  
ITEM: OVEN FAN

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5128  
NASA FMEA #: 2.12.2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5128  
ITEM: OVEN THERMOSTAT

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CAPABILITY RATIONALE: (If

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5129  
NASA FMEA #: 2.12.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5129  
ITEM: OVEN THERMOSTAT

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5130  
NASA FMEA #: 2.11.1

NASA DATA:  
BAELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5130  
ITEM: OVEN HEATER

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5131  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5131  
ITEM: OVEN DOOR LAUNCH/ENTRY RESTRAINING STRAP

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NASA CONSIDERED THIS COMPONENT AS SECONDARY STRUCTURE AND  
THEREFORE DID NOT ANALYZE IT FOR FAILURES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5132  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5132  
ITEM: OVEN DOOR

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA CONSIDERED THIS COMPONENT AS SECONDARY STRUCTURE AND  
THEREFORE DID NOT ANALYZE IT FOR FAILURES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5133  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5133  
ITEM: OVEN DOOR

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
	FLIGHT	HDW/FUNC	A	B	C	
NASA	[ / ]		[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /3 ]		[ ]	[ ]	[ ]	[ ]
COMPARE	[ N /N ]		[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NASA CONSIDERED THIS COMPONENT AS SECONDARY STRUCTURE AND THEREFORE DID NOT ANALYZE IT FOR FAILURES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5134  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5134  
ITEM: OVEN DOOR LATCH

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NASA CONSIDERED THIS COMPONENT AS SECONDARY STRUCTURE AND  
THEREFORE DID NOT ANALYZE IT FOR FAILURES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5135  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5135  
ITEM: OVEN DOOR LATCH

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If 2808H applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA CONSIDERED THIS COMPONENT AS SECONDARY STRUCTURE AND  
THEREFORE DID NOT ANALYZE IT FOR FAILURES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5136  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5136  
ITEM: OVEN DOOR TRACK

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA CONSIDERED THIS COMPONENT AS SECONDARY STRUCTURE AND  
THEREFORE DID NOT ANALYZE IT FOR FAILURES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5137  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5137  
ITEM: OVEN DOOR TRACK

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA CONSIDERED THIS COMPONENT AS SECONDARY STRUCTURE AND THEREFORE DID NOT ANALYZE IT FOR FAILURES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5138  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5138  
ITEM: OVEN GASKET

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NASA DID NOT CONSIDER THIS TO BE A SIGNIFICANT FAILURE AND  
THEREFORE DID NOT INCLUDE IT IN THEIR ANALYSIS.

# **APPENDIX C ASSESSMENT WORKSHEET**

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5139  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5139  
ITEM: OVEN SHELF ASSEMBLY - UPPER RACK

LEAD ANALYST: B. RICHARD

## **ASSESSMENT:**

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## **REMARKS:**

NASA CONSIDERED THIS COMPONENT AS SECONDARY STRUCTURE AND THEREFORE DID NOT ANALYZE IT FOR FAILURES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5140  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5140  
ITEM: LOWER SHELF ASSEMBLY

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA CONSIDERED THIS COMPONENT AS SECONDARY STRUCTURE AND  
THEREFORE DID NOT ANALYZE IT FOR FAILURES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5141  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5141  
ITEM: LOWER TRACKS

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	[    ]
					(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA CONSIDERED THIS COMPONENT AS SECONDARY STRUCTURE AND THEREFORE DID NOT ANALYZE IT FOR FAILURES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5142  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5142  
ITEM: OVEN SCREEN

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

SINCE THE SCREEN CAN BE CLEANED, THIS IS NOT CONSIDERED A CREDIBLE FAILURE BY NASA. THIS FMEA (5142) WILL BE DELETED.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5143  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5143  
ITEM: OVEN SCREEN

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA CONSIDERED THIS COMPONENT AS SECONDARY STRUCTURE AND  
THEREFORE DID NOT ANALYZE IT FOR FAILURES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5144  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5144  
ITEM: SPRING LOADED PLATE

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ]	[ ]	[ ]	[ ]	[ ]
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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NASA CONSIDERED THIS COMPONENT AS SECONDARY STRUCTURE AND THEREFORE DID NOT ANALYZE IT FOR FAILURES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5145  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5145  
ITEM: OVEN SPRING CLIP

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA CONSIDERED THIS COMPONENT AS SECONDARY STRUCTURE AND  
THEREFORE DID NOT ANALYZE IT FOR FAILURES.

0-4

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5146  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5146  
ITEM: OVEN FINNED PLATE HEAT SINK

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA CONSIDERED THIS COMPONENT AS SECONDARY STRUCTURE AND THEREFORE DID NOT ANALYZE IT FOR FAILURES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5147  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5147  
ITEM: GALLEY CONTROL ELECTRONICS

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THIS WAS NOT CONSIDERED TO BE A CREDIBLE FAILURE BY NASA; ALSO ASSOCIATED FAILURES ARE COVERED BY OTHER FMEAs ON INDIVIDUAL SWITCHES. THIS FMEA (5147) WILL BE DELETED.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5148  
NASA FMEA #: 2.7.1, 2.7.2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5148  
ITEM: WATER QUANTITY SELECTOR SWITCH

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THIS FAILURE IS COVERED BY NASA FMEAs 2.7.1 AND 2.7.2.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5149  
NASA FMEA #: 2.7.2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5149  
ITEM: WATER QUANTITY SELECTOR SWITCH

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5150  
NASA FMEA #: 2.7.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5150  
ITEM: WATER QUANTITY SELECTOR SWITCH

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5151  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5151  
ITEM: REHYDRATION PUMP

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

FAILURE OF P2 TO STOP WAS NOT CONSIDERED TO BE A SIGNIFICANT  
FAILURE TO NASA AND WAS NOT INCLUDED IN THEIR ANALYSIS.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5152  
NASA FMEA #: 1.5.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5152  
ITEM: REHYDRATION PUMP

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]
RECOMMENDATIONS: (If different from NASA)					
	[    /    ]	[    ]	[    ]	[    ]	[    ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5153  
NASA FMEA #: 2.4.2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5153  
ITEM: RHS LEVER ARM CONTROL

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ /N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

FAILURE OF THIS SWITCH OPEN COULD RESULT IN LOSS OF THE GALLEY.  
A DIFFERENCE IN GROUND RULES ACCOUNTS FOR THE DIFFERENCE IN  
CRITICALITY RATINGS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5154  
NASA FMEA #: 2.4.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5154  
ITEM: RHS LEVER ARM CONTROL

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	A	B	C	CIL ITEM
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

A DIFFERENCE IN GROUND RULES ACCOUNTS FOR THE SLIGHT DIFFERENCE IN CRITICALITY RATINGS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5155  
NASA FMEA #: 2.4.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5155  
ITEM: REHYDRATION STATION SWITCH

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ /N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

A DIFFERENCE IN GROUND RULES ACCOUNTS FOR THE SLIGHT DIFFERENCE IN THE CRITICALITY RATINGS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5156  
NASA FMEA #: 2.4.2

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5156  
ITEM: REHYDRATION STATION SWITCH

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[   ]	[   ]	[   ]	[   ] *
IOA	[ 3 /3 ]	[   ]	[   ]	[   ]	[   ]
COMPARE	[   /N ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]	[   ]	[   ]	[   ]	[   ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

## REMARKS:

A DIFFERENCE IN GROUND RULES ACCOUNTS FOR THE SLIGHT DIFFERENCE IN THE CRITICALITY RATINGS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5157  
NASA FMEA #: 2.6.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5157  
ITEM: COLD WATER FILL PUSH BUTTON SWITCH

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5158  
NASA FMEA #: 2.6.2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5158  
ITEM: COLD WATER FILL PUSH BUTTON SWITCH

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5159  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5159  
ITEM: COLD WATER FILL SWITCH - LIGHT

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NASA DID NOT CONSIDER THIS FAILURE SIGNIFICANT AND DID NOT  
INCLUDE IT IN THEIR ANALYSIS.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5160  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5160  
ITEM: COLD WATER FILL SWITCH - LIGHT

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ]	[ ]	[ ]	[ ]	[ ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NASA DID NOT CONSIDER THIS FAILURE SIGNIFICANT AND DID NOT  
INCLUDE IT IN THEIR ANALYSIS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5161  
NASA FMEA #: 1.9.2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5161  
ITEM: RHS CHILLED WATER FEED SOLENOID/VALVE

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5162  
NASA FMEA #: 1.9.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5162  
ITEM: RHS CHILLED WATER FEED SOLENOID/VALVE

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# **APPENDIX C ASSESSMENT WORKSHEET**

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5163  
NASA FMEA #: 1.8.2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5163  
ITEM: RHS OUTLET SOLENOID VALVE

LEAD ANALYST: B. RICHARD

## **ASSESSMENT:**

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5164  
NASA FMEA #: 1.8.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5164  
ITEM: RHS OUTLET SOLENOID VALVE

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

A DIFFERENCE IN GROUND RULES ACCOUNTS FOR THE SLIGHT DIFFERENCE IN CRITICALITY RATINGS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5165  
NASA FMEA #: 1.7.2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5165  
ITEM: RHS BYPASS SOLENOID VALVE

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5166  
NASA FMEA #: 1.7.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5166  
ITEM: RHS BYPASS SOLENOID VALVE

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

A DIFFERENCE IN GROUND RULES ACCOUNTS FOR THE SLIGHT DIFFERENCE IN THE CRITICALITY RATINGS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5167  
NASA FMEA #: 2.5.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5167  
ITEM: HOT WATER FILL PUSH BUTTON SWITCH

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5168  
NASA FMEA #: 2.5.2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5168  
ITEM: HOT WATER FILL PUSH BUTTON SWITCH

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5169  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5169  
ITEM: HOT WATER FILL SWITCH - LIGHT

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA DID NOT CONSIDER THIS FAILURE SIGNIFICANT AND DID NOT  
INCLUDE IT IN THEIR ANALYSIS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5170  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5170  
ITEM: HOT WATER FILL SWITCH - LIGHT

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA DID NOT CONSIDER THIS FAILURE SIGNIFICANT AND DID NOT  
INCLUDE IT IN THEIR ANALYSIS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5171  
NASA FMEA #: 1.6.2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5171  
ITEM: COLD WATER RECIRCULATION SOLENOID/VALVE

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5172  
NASA FMEA #: 1.6.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5172  
ITEM: COLD WATER RECIRCULATION SOLENOID/VALVE

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5173  
NASA FMEA #: 1.14.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5173  
ITEM: RHS NEEDLE

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

A DIFFERENCE IN GROUND RULES ACCOUNTS FOR THE SLIGHT DIFFERENCE IN THE CRITICALITY RATINGS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5174  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5174  
ITEM: RHS CUP RETAINER

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA CONSIDERED THIS COMPONENT AS SECONDARY STRUCTURE AND THEREFORE DID NOT ANALYZE IT FOR FAILURES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5175  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5175  
ITEM: RHS CUP RETAINER PARALLEL RODS

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA CONSIDERED THIS COMPONENT AS SECONDARY STRUCTURE AND  
THEREFORE DID NOT ANALYZE IT FOR FAILURE.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5176  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5176  
ITEM: RHS CUP RETAINER PARALLEL RODS

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA CONSIDERED THIS COMPONENT AS SECONDARY STRUCTURE AND THEREFORE DID NOT ANALYZE IT FOR FAILURES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5177  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5177  
ITEM: RHS "TRANSPARENT CHAMBER"

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N /N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA CONSIDERED THIS COMPONENT AS SECONDARY STRUCTURE AND THEREFORE DID NOT ANALYZE IT FOR FAILURES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5178  
NASA FMEA #: 1.2.2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5178  
ITEM: INLET WATER CONNECTIONS

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

A DIFFERENCE IN GROUND RULES ACCOUNTS FOR THE SLIGHT DIFFERENCE IN THE CRITICALITY RATINGS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5179  
NASA FMEA #: 1.2.1, 1.2.3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5179  
ITEM: INLET WATER CONNECTIONS

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5180  
NASA FMEA #: 1.1.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5180  
ITEM: MANUAL SHUT OFF VALVE

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

A DIFFERENCE IN GROUND RULES ACCOUNTS FOR THE SLIGHT DIFFERENCE IN CRITICALITY RATINGS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/01/87  
ASSESSMENT ID: CRWEQP-5181  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5181  
ITEM: AUXILIARY PORT - POTABLE WATER

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

RESTRICTED FLOW OF THE AUXILIARY PORT WAS NOT CONSIDERED BY NASA  
IN THEIR ANALYSIS OF THE GALLEY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-5300  
NASA FMEA #: OWDA-10A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5300  
ITEM: OPERATIONAL WATER DISPENSER QUICK DISCONNECTS

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THE QUICK DISCONNECTS ARE A SUB-PART OF THE HOSE ASSEMBLY  
REFERENCED IN THE NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-5301  
NASA FMEA #: OWDA-10A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5301  
ITEM: OPERATIONAL WATER DISPENSER QUICK DISCONNECTS

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THE QUICK DISCONNECTS ARE A SUB-PART OF THE HOSE ASSEMBLY  
REFERENCED IN THE NASA FMEA.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-5302  
NASA FMEA #: OWDA-6A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5302  
ITEM: OPERATIONAL WATER DISPENSER AMBIENT/CHILLED/OFF  
WATER VALVE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]
RECOMMENDATIONS: (If different from NASA)					
	[    /    ]	[    ]	[    ]	[    ]	[    ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-5303  
NASA FMEA #: OWDA-6D

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5303  
ITEM: OPERATIONAL WATER DISPENSER AMBIENT/CHILLED/OFF  
WATER VALVE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THE IOA FMEA CARRIES THE OVERALL FAILURE MODE OF EXTERNAL  
LEAKAGE, BUT DESCRIBES THE EFFECTS OF NASA FMEA OWDA-6D - FAILS  
OPEN/INTERNAL LEAKAGE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-5304  
NASA FMEA #: OWDA-6B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5304  
ITEM: OPERATIONAL WATER DISPENSER AMBIENT/CHILLED/OFF  
WATER VALVE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

AGREE WITH NASA CRITICALITY. HAVING WATER AVAILABLE AT ONLY ONE  
TEMPERATURE SHOULD NOT CAUSE A MISSION ABORT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-5305  
NASA FMEA #: OWDA-4B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5305  
ITEM: OPERATIONAL WATER DISPENSER PRESSURE REGULATOR

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-5306  
NASA FMEA #: OWDA-4C

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5306  
ITEM: OPERATIONAL WATER DISPENSER PRESSURE REGULATOR

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA FMEA DOES NOT CONSIDER THE POSSIBILITY THAT THE LEAKAGE WILL RENDER THE PRESSURE REGULATOR AND THUS THE OWDA INOPERABLE. IF THE LEAK IS SMALL, THE OWDA IS USABLE. HOWEVER, A LARGE LEAK WILL DECREASE THE PRESSURE AND PREVENT WATER FROM REACHING THE CREW. THE ISSUE WILL BE DISCUSSED WITH THE SUBSYSTEM MANAGER.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-5307  
NASA FMEA #: OWDA-5A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5307  
ITEM: OPERATIONAL WATER DISPENSER BYPASS VALVE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-5308  
NASA FMEA #: OWDA-5B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5308  
ITEM: OPERATIONAL WATER DISPENSER BYPASS VALVE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA FMEA 5308 LISTS AN OVERALL FAILURE MODE OF EXTERNAL LEAKAGE,  
BUT DESCRIBES THE EFFECTS TO MATCH NASA FMEA OWDA-5B - FAILS  
OPEN/INTERNAL LEAKAGE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-5309  
NASA FMEA #: OWDA-3B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5309  
ITEM: OPERATIONAL WATER DISPENSER SOLENOID VALVE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-5310  
NASA FMEA #: OWDA-3A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5310  
ITEM: OPERATIONAL WATER DISPENSER SOLENOID VALVE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA FMEA IS TITLED WITH A FAILURE MODE OF EXTERNAL LEAKAGE.  
HOWEVER, THE EFFECTS DESCRIBE THE CASE OF FAILING OPEN/LEAKS  
INTERNALLY AS WRITTEN IN THE NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-5311  
NASA FMEA #: OWDA-11A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5311  
ITEM: OPERATIONAL WATER DISPENSER ROTARY SELECTION SWITCH

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ / ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-5312  
NASA FMEA #: OWDA-2C

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5312  
ITEM: OPERATIONAL WATER DISPENSER REHYDRATION NEEDLE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/03/87  
ASSESSMENT ID: CRWEQP-5313  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5313  
ITEM: OPERATIONAL WATER DISPENSER MICROBIAL CHECK VALVE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO EQUIVALENT NASA FMEA. SHOULD BE ADDED TO NASA DATA BASE FOR COMPLETENESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-5314  
NASA FMEA #: OWDA-7A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5314  
ITEM: OPERATIONAL WATER DISPENSER MICROBIAL CHECK  
VALVE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/03/87  
ASSESSMENT ID: CRWEQP-5315  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5315  
ITEM: OPERATIONAL WATER DISPENSER MICROBIAL CHECK VALVE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO COMPARABLE NASA FMEA. UPON CLOSER EXAMINATION IOA FEELS THAT THIS FAILURE IS UNREALISTIC AND SHOULD BE DELETED FROM THE IOA DATA BASE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-5316  
NASA FMEA #: OWDA-8A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5316  
ITEM: OPERATIONAL WATER DISPENSER PERSONAL HYGIENE  
VALVE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-5317  
NASA FMEA #: OWDA-8B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5317  
ITEM: OPERATIONAL WATER DISPENSER PERSONAL HYGIENE VALVE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-5318  
NASA FMEA #: OWDA-8A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5318  
ITEM: OPERATIONAL WATER DISPENSER PERSONAL HYGIENE  
VALVE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-5319  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5319  
ITEM: OPERATIONAL WATER DISPENSER HOLDING CLIPS

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO EQUIVALENT NASA FMEA BUT IT SHOULD BE ADDED FOR COMPLETENESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-5320  
NASA FMEA #: OWDA-14A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5320  
ITEM: OPERATIONAL WATER DISPENSER INPUT POWER  
CONNECTOR

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THE INPUT POWER CONNECTOR IS A SUB-PART OF THE OVERALL OWDA CONTROLLER. CRITICALITY SHOULD BE CHANGED TO MATCH NASAs SINCE LOSS OF ALL REDUNDANT METHODS TO PROVIDE WATER TO THE CREW WILL RESULT IN A LOSS OF MISSION.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-5321  
NASA FMEA #: OWDA-9A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5321  
ITEM: OPERATIONAL WATER DISPENSER FLEX LINE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THE NASA FMEA IS ACTUALLY WRITTEN FOR A LEAKAGE IN THE LINE. A LEAK, IF TAKEN TO WORST CASE, CAN BE CONSIDERED A STRUCTURAL FAILURE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-5322  
NASA FMEA #: OWDA-9B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5322  
ITEM: OPERATIONAL WATER DISPENSER FLEX LINES

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]
RECOMMENDATIONS: (If different from NASA)					
	[    /    ]	[    ]	[    ]	[    ]	[    ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/03/87  
ASSESSMENT ID: CRWEQP-5400  
NASA FMEA #: CWDA-15A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5400  
ITEM: CONTINGENCY WATER DISPENSER

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA FMEA DOES NOT CONSIDER THE POSSIBILITY THAT THE LEAK CAN BE SEVERE ENOUGH TO PREVENT THE USE OF THE CWDA. SINCE WORST CASE ANALYSIS REQUIRES THAT THIS BE DONE, IOA RECOMMENDS THAT THE CRITICALITY BE CHANGED TO A 3/2R.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/04/87  
ASSESSMENT ID: CRWEQP-5400A  
NASA FMEA #: CWDA-17B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5400  
ITEM: CONTINGENCY WATER DISPENSER

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA FMEA DOES NOT CONSIDER THE POSSIBILITY THAT THE LEAK CAN BE SEVERE ENOUGH TO PREVENT THE USE OF THE CWDA. A WORST CASE LEAK WOULD DO THIS. IOA RECOMMENDS THAT ASSIGNING THE 3/2R CRITICALITY TO THE CWDA CONNECTION.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/03/87  
ASSESSMENT ID: CRWEQP-5401  
NASA FMEA #: CWDA-15B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5401  
ITEM: CONTINGENCY WATER DISPENSER

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/03/87  
ASSESSMENT ID: CRWEQP-5402  
NASA FMEA #: CWDA-16A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 5402  
ITEM: CONTINGENCY WATER DISPENSER

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
AGREE WITH NASA CRITICALITIES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/14/88  
ASSESSMENT ID: CRWEQP-6100  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6100  
ITEM: SLEEPING BAG - ADJUSTABLE STRAPS

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA DID NOT CONSIDER THIS FAILURE SIGNIFICANT AND DID NOT  
INCLUDE IT IN THEIR ANALYSIS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/14/88  
ASSESSMENT ID: CRWEQP-6101  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6101  
ITEM: SLEEPING BAG - HELICAL SPRING

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

DATA WAS NOT AVAILABLE FROM NASA FOR THIS ASSESSMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/14/88  
ASSESSMENT ID: CRWEQP-6102  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6102  
ITEM: SLEEPING BAG - CLOTH TUNNEL

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

DATA WAS NOT AVAILABLE FROM NASA FOR THIS ASSESSMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/14/88  
ASSESSMENT ID: CRWEQP-6103  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6103  
ITEM: SLEEPING BAG - SPRING CLIP

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
	FLIGHT	HDW/FUNC	A	B	C	
NASA	[ / ]		[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /3 ]		[ ]	[ ]	[ ]	[ ]
COMPARE	[ N /N ]		[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

DATA WAS NOT AVAILABLE FROM NASA FOR THIS ASSESSMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/14/88  
ASSESSMENT ID: CRWEQP-6104  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6104  
ITEM: SLEEPING BAG - SPRING CLIP

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
	FLIGHT	HDW/FUNC	A	B	C	
NASA	[    /    ]		[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]		[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]		[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

DATA WAS NOT AVAILABLE FROM NASA FOR THIS ASSESSMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/14/88  
ASSESSMENT ID: CRWEQP-6105  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6105  
ITEM: SLEEPING BAG - PIP PIN

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

DATA WAS NOT AVAILABLE FROM NASA FOR THIS ASSESSMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/14/88  
ASSESSMENT ID: CRWEQP-6106  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6106  
ITEM: SLEEPING BAG - MOUNTING LOCATION

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

DATA WAS NOT AVAILABLE FROM NASA FOR THIS ASSESSMENT.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/14/88  
ASSESSMENT ID: CRWEQP-6107  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6107  
ITEM: SLEEPING BAG RESTRAINTS - BUCKLE FLAP

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

DATA WAS NOT AVAILABLE FROM NASA FOR THIS ASSESSMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/14/88  
ASSESSMENT ID: CRWEQP-6108  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6108  
ITEM: ATTACHMENT ZIPPER(S)

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N /N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

DATA WAS NOT AVAILABLE FROM NASA FOR THIS ASSESSMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/14/88  
ASSESSMENT ID: CRWEQP-6109  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6109  
ITEM: CLOSURE ZIPPER

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

DATA WAS NOT AVAILABLE FROM NASA FOR THIS ASSESSMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/14/88  
ASSESSMENT ID: CRWEQP-6110  
NASA FMEA #:

NASA DATA:  
BASELINE [     ]  
NEW [     ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6110  
ITEM: BODY RESTRAINTS

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[   /   ]	[   ]	[   ]	[   ]	[   ] *
IOA	[ 3 /3 ]	[   ]	[   ]	[   ]	[   ]
COMPARE	[ N /N ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]     [   ]     [   ]     [   ]     [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [     ]  
INADEQUATE [     ]

## REMARKS:

DATA WAS NOT AVAILABLE FROM NASA FOR THIS ASSESSMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/14/88  
ASSESSMENT ID: CRWEQP-6111  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6111  
ITEM: FOUR-TIER SLEEP STATION SLIDING DOOR

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]
RECOMMENDATIONS: (If different from NASA)					
	[    /    ]	[    ]	[    ]	[    ]	[    ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

DATA WAS NOT AVAILABLE FROM NASA FOR THIS ASSESSMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/14/88  
ASSESSMENT ID: CRWEQP-6112  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6112  
ITEM: FOUR-TIER SLEEP STATION CAPTIVE WING NUT  
FASTENER

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

DATA WAS NOT AVAILABLE FROM NASA FOR THIS ASSESSMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/14/88  
ASSESSMENT ID: CRWEQP-6113  
NASA FMEA #:

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6113  
ITEM: FOUR-TIER SLEEP STATION AIR DIFFUSER

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

DATA WAS NOT AVAILABLE FROM NASA FOR THIS ASSESSMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/14/88  
ASSESSMENT ID: CRWEQP-6114  
NASA FMEA #:

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6114  
ITEM: FOUR-TIER SLEEP STATION LIGHT

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

DATA WAS NOT AVAILABLE FROM NASA FOR THIS ASSESSMENT.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/09/87  
ASSESSMENT ID: CRWEQP-6200  
NASA FMEA #: PIP PIN (1) A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6200  
ITEM: ORBITER SIDE HATCH SAFETY LOCK PIP PIN

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/09/87	NASA DATA:
ASSESSMENT ID: CRWEQP-6201	BASELINE [    ]
NASA FMEA #: PIP PIN (1) B	NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6201  
ITEM: ORBITER SIDE HATCH SAFETY LOCK PIP PIN

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY	SCREENS		CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ] (ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/05/88  
ASSESSMENT ID: CRWEQP-6300  
NASA FMEA #: REF #1, 2, 3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6300  
ITEM: MIDDECK STOWAGE LOCKER DOOR

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA GROUND RULE STATES THAT LOCKER TOOLS AND MEDICAL SUPPLIES ARE ALWAYS STORED IN SEPARATE LOCKERS. THIS WOULD VIRTUALLY ELIMINATE THE POSSIBILITY THAT THE CREW COULD NOT ACCESS MEDICAL SUPPLIES. SUGGEST THAT IOA CRITICALITY BE CHANGED TO 3/3 TO MATCH NASA'S.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/05/88  
ASSESSMENT ID: CRWEQP-6301  
NASA FMEA #: REF #4

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6301  
ITEM: MIDDECK STOWAGE LOCKER DOOR

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/05/88  
ASSESSMENT ID: CRWEQP-6302  
NASA FMEA #: REF #6

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6302  
ITEM: MIDDECK STOWAGE LOCKER DOOR HINGE PIN

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE:	1/05/88	NASA DATA:
ASSESSMENT ID:	CRWEQP-6303	BASELINE [    ]
NASA FMEA #:	REF #5, 7, 8	NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6303  
ITEM: MIDDECK STOWAGE LOCKER DOOR

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

## REMARKS:

NASA DOES NOT FEEL THAT THIS FAILURE COULD ACTUALLY RESULT IN SIGNIFICANT DAMAGE TO THE VEHICLE OR SIGNIFICANT INJURY TO THE CREW. RECOMMEND THAT THE IOA CRITICALITY BE CHANGED TO 3/3 TO MATCH NASA'S.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/07/87  
ASSESSMENT ID: CRWEQP-6400  
NASA FMEA #: TREADMILL 9A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6400  
ITEM: TREADMILL EXERCISER ASSEMBLY

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]
RECOMMENDATIONS: (If different from NASA)					
	[    /    ]	[    ]	[    ]	[    ]	[    ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

## APPENDIX C

### ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/07/87  
ASSESSMENT ID: CRWEQP-6401  
NASA FMEA #: TREADMILL 2A

**NASA DATA:**  
**BASELINE** [     ]  
**NEW** [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6401  
ITEM: TREADMILL EXERCISER ASSEMBLY BUNGEE FORCE CORD

**LEAD ANALYST: L. GRAHAM, S. SINCLAIR**

**ASSESSMENT:**

CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
FLIGHT	HDW/FUNC	A	B	C	
NASA	[ 3 /3 ]	[ ]	[ ]	[ ]	* [ ]
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

**RECOMMENDATIONS:** (If different from NASA)

[   /   ]      [   ]      [   ]      [   ]      [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS :



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/07/87  
ASSESSMENT ID: CRWEQP-6402  
NASA FMEA #: TREADMILL 4A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6402  
ITEM: TREADMILL EXERCISER ASSEMBLY SHOULDER STRAP

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/07/87  
ASSESSMENT ID: CRWEQP-6403  
NASA FMEA #: TREADMILL 3A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6403  
ITEM: TREADMILL EXERCISER ASSEMBLY WAIST BELT

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/07/87  
ASSESSMENT ID: CRWEQP-6404  
NASA FMEA #: TREADMILL 5A

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6404  
ITEM: TREADMILL EXERCISER ASSEMBLY PHYSIOLOGICAL  
MONITOR

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/07/87                      NASA DATA:  
 ASSESSMENT ID: CRWEQP-6405                      BASELINE [    ]  
 NASA FMEA #: TREADMILL 6A                      NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
 MDAC ID: 6405  
 ITEM: TREADMILL EXERCISER ASSEMBLY HANDLE ASSEMBLY

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
 INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/07/87  
ASSESSMENT ID: CRWEQP-6406  
NASA FMEA #: TREADMILL 5A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6406  
ITEM: TREADMILL EXERCISE ASSEMBLY INFRARED SENSOR

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]
RECOMMENDATIONS: (If different from NASA)					
	[    /    ]	[    ]	[    ]	[    ]	[    ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/07/87  
ASSESSMENT ID: CRWEQP-6407  
NASA FMEA #: TREADMILL 7A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6407  
ITEM: TREADMILL EXERCISER ASSEMBLY SPEED CONTROL KNOB

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/07/87  
ASSESSMENT ID: CRWEQP-6408  
NASA FMEA #: TREADMILL 1A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6408  
ITEM: TREADMILL EXERCISER ASSEMBLY ATTACHMENT FITTINGS

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ N /    ]	[    ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ]	[    ]	[    ]	[    ]	[ D ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

BELIEVE LATER REVISION OF THIS FMEA WILL LOWER THE CRITICALITY OF THE TREADMILL ATTACH POINTS TO A NON-CIL LEVEL TO COMPLY WITH CCB DIRECTIVES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/11/88

ASSESSMENT ID: CRWEQP-6500

NASA FMEA #: 07-1-725101-4

NASA DATA:

BASELINE [    ]

NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT

MDAC ID: 6500

ITEM: CREWMAN OPTICAL ALIGNMENT SIGHT (COAS) INTENSITY  
CONTROL/POWER SWITCH

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	A	B	C	CIL ITEM
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/11/88  
ASSESSMENT ID: CRWEQP-6501  
NASA FMEA #: 07-1-725101-5

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6501  
ITEM: CREWMAN OPTICAL ALIGNMENT SIGHT (COAS) INTENSITY  
CONTROL

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/11/88  
ASSESSMENT ID: CRWEQP-6502  
NASA FMEA #: 07-1-725101-3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6502  
ITEM: CREWMAN OPTICAL ALIGNMENT SIGHT (COAS) LIGHT  
BULB

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/11/88  
ASSESSMENT ID: CRWEQP-6503  
NASA FMEA #: 07-1-725101-3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6503  
ITEM: CREWMAN OPTICAL ALIGNMENT SIGHT (COAS) MOUNTING  
BASE

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE:	1/11/88	NASA DATA:
ASSESSMENT ID:	CRWEQP-6504	BASELINE [    ]
NASA FMEA #:	07-1-725102-1	NEW [ X ]
SUBSYSTEM:	CREW EQUIPMENT	
MDAC ID:	6504	
ITEM:	CREWMAN OPTICAL ALIGNMENT SIGHT (COAS) FORWARD	
ADAPTER BRACKET		

LEAD ANALYST:     L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS:     (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/11/88  
ASSESSMENT ID: CRWEQP-6505  
NASA FMEA #: 07-1-725102-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6505  
ITEM: CREWMAN OPTICAL ALIGNMENT SIGHT (COAS) FORWARD  
ADAPTER BRACKET

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]
RECOMMENDATIONS: (If different from NASA)					
	[    /    ]	[    ]	[    ]	[    ]	[    ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/11/88  
ASSESSMENT ID: CRWEQP-6506  
NASA FMEA #: 07-1-725103-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6506  
ITEM: CREWMAN OPTICAL ALIGNMENT SIGHT (COAS) AFT  
MOUNTING BRACKET

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/11/88  
ASSESSMENT ID: CRWEQP-6507  
NASA FMEA #: 07-1-725102-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6507  
ITEM: CREWMAN OPTICAL ALIGNMENT SIGHT (COAS) FORWARD  
MOUNTING BRACKET

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/11/88	NASA DATA:
ASSESSMENT ID: CRWEQP-6508	BASELINE [    ]
NASA FMEA #: 07-1-725101-7	NEW [ X ]
SUBSYSTEM: CREW EQUIPMENT	
MDAC ID: 6508	
ITEM: CREWMAN OPTICAL ALIGNMENT SIGHT (COAS) APERTURE STOP	

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY	SCREENS		CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ] (ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/11/88  
ASSESSMENT ID: CRWEQP-6509  
NASA FMEA #: 07-1-725101-6

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6509  
ITEM: CREWMAN OPTICAL ALIGNMENT SIGHT (COAS) APERTURE  
STOP

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

CRITICALITY		REDUNDANCY SCREENS			CIL
FLIGHT					ITEM
HDW/FUNC		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/11/88	NASA DATA:
ASSESSMENT ID: CRWEQP-6510	BASELINE [    ]
NASA FMEA #: 07-1-725101-3	NEW [ X ]
SUBSYSTEM: CREW EQUIPMENT	
MDAC ID: 6510	
ITEM: CREWMAN OPTICAL ALIGNMENT SIGHT (COAS) COMBINER	
LENS ASSEMBLY	

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS	CIL ITEM
		A            B            C	
NASA	[ 3 /1R ]	[ P ]    [ P ]    [ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]    [    ]    [    ]	[    ]
COMPARE	[    /N ]	[ N ]    [ N ]    [ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/11/88  
ASSESSMENT ID: CRWEQP-6511  
NASA FMEA #: 07-1-725101-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 6511  
ITEM: CREWMAN OPTICAL ALIGNMENT SIGHT (COAS) BARREL  
LOCK

LEAD ANALYST: L. GRAHAM, S. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE:	12/14/87	NASA DATA:
ASSESSMENT ID:	CRWEQP-11215X	BASELINE [    ]
NASA FMEA #:	JSC22453-1A	NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 11215  
ITEM: EMU LIGHT ASSEMBLY - BATTERY CELL

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/14/87  
ASSESSMENT ID: CRWEQP-11216X  
NASA FMEA #: JSC22453-2A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 11216  
ITEM: EMU LIGHT ASSEMBLY - BATTERY CELL

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ] *
IOA	[ 1 /1 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/14/87  
ASSESSMENT ID: CRWEQP-11217X  
NASA FMEA #: JSC22453-4A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 11217  
ITEM: EMU LIGHT ASSEMBLY - THERMOSTAT

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/14/87  
ASSESSMENT ID: CRWEQP-11218X  
NASA FMEA #: JSC22453-5A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 11218  
ITEM: EMU LIGHT ASSEMBLY - THERMOSTAT

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]
RECOMMENDATIONS: (If different from NASA)					
	[    /    ]	[    ]	[    ]	[    ]	[    ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/14/87  
ASSESSMENT ID: CRWEQP-11219X  
NASA FMEA #: JSC22453-6A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 11219  
ITEM: EMU LIGHT ASSEMBLY - LIGHT SWITCH

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/14/87  
ASSESSMENT ID: CRWEQP-11220X  
NASA FMEA #: JSC22453-6B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 11220  
ITEM: EMU LIGHT ASSEMBLY - LIGHT SWITCH

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/14/87  
 ASSESSMENT ID: CRWEQP-11221X  
 NASA FMEA #: JSC22453-11A

NASA DATA:  
 BASELINE [    ]  
 NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
 MDAC ID: 11221  
 ITEM: EMU LIGHT ASSEMBLY - FINGER CONTACT ASSEMBLY

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
 INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/14/87  
ASSESSMENT ID: CRWEQP-11222X  
NASA FMEA #: JSC22453-12A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 11222  
ITEM: EMU LIGHT ASSEMBLY - ELECTRICAL CONNECTOR

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
	FLIGHT	HDW/FUNC	A	B	C	
NASA	[ 3 /2R ]		[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]		[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]		[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/14/87  
ASSESSMENT ID: CRWEQP-11325X  
NASA FMEA #: OBS 2B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 11325  
ITEM: OBS - SIGNAL CONDITIONER - BATTERY CONTACT  
ASSEMBLY

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

THIS IS A NEW ITEM ADDED TO THE IOA DATA BASE DURING THE  
ASSESSMENT PROCESS. IOA CRITICALITY IS MATCHED TO THE NASA IVA  
CRITICALITY UNDER WORST CASE ANALYSIS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/14/87  
ASSESSMENT ID: CRWEQP-11326X  
NASA FMEA #: OBS 2D

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 11326  
ITEM: OBS - SIGNAL CONDITIONER

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NEW ITEM ADDED TO THE IOA DATA BASE DURING THE ASSESSMENT  
PROCESS. IOA CRITICALITY IS MATCHED TO THE NASA IVA CRITICALITY  
UNDER WORST CASE ANALYSIS PROCESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/14/87  
 ASSESSMENT ID: CRWEQP-11327X  
 NASA FMEA #: OBS 3B  
  
 SUBSYSTEM: CREW EQUIPMENT  
 MDAC ID: 11327  
 ITEM: OBS - IVA CABLE

NASA DATA:  
 BASELINE [    ]  
 NEW [ X ]

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
 INADEQUATE [    ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/17/87  
ASSESSMENT ID: CRWEQP-11433X  
NASA FMEA #: JSC22480-17B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 11433  
ITEM: PORTABLE FOOT RESTRAINT ARTICULATING SOCKET  
ASSEMBLY QUICK RELEASE PIN

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/19/87  
ASSESSMENT ID: CRWEQP-12110X  
NASA FMEA #: 07-1B-SW7-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 12110  
ITEM: EVA SLIDEWIRE CUSHION

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/18/87  
ASSESSMENT ID: CRWEQP-12214X  
NASA FMEA #: JSC17067B-1C

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 12214  
ITEM: ERCM SAFETY TETHER - CABLE THIMBLE

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC			REDUNDANCY SCREENS			CIL ITEM
				A	B	C	
NASA	[ 3	/3	]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3	/3	]	[    ]	[    ]	[    ]	[    ]
COMPARE	[	/	]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-13113X  
NASA FMEA #: TUBE CUTTER 6H

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 13113  
ITEM: TUBE CUTTER PAWL

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
 ASSESSMENT ID: CRWEQP-13309X  
 NASA FMEA #: 3-POINT LATCH 5G

NASA DATA:  
 BASELINE [    ]  
 NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
 MDAC ID: 13309  
 ITEM: SAFETY RELEASE

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
 INADEQUATE [    ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
 ASSESSMENT ID: CRWEQP-13310X  
 NASA FMEA #: 3-POINT LATCH TOOL

NASA DATA:  
 BASELINE [    ]  
 NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
 MDAC ID: 13310  
 ITEM: RELEASE SPRING

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
 INADEQUATE [    ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/22/87  
 ASSESSMENT ID: CRWEQP-13418X  
 NASA FMEA #: EVA WINCH 3N

NASA DATA:  
 BASELINE [   ]  
 NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
 MDAC ID: 13418  
 ITEM: EVA WINCH AND MOUNT ASSEMBLY PIP PIN

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[   ]	[   ]	[   ]	[   ] *
IOA	[ 3 / 3 ]	[   ]	[   ]	[   ]	[   ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]   [   ]   [   ]   [   ]   [   ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
 INADEQUATE [   ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/22/87  
ASSESSMENT ID: CRWEQP-13419X  
NASA FMEA #: EVA WINCH 3M

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 13419  
ITEM: EVA WINCH AND MOUNT ASSEMBLY PIP PIN

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/22/87  
ASSESSMENT ID: CRWEQP-13420X  
NASA FMEA #: EVA WINCH 3K

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 13420  
ITEM: EVA WINCH AND MOUNT ASSEMBLY HOOK

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
	FLIGHT	HDW/FUNC	A	B	C	
NASA	[ 3 / 3 ]		[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]		[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]		[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/22/87	NASA DATA:
ASSESSMENT ID: CRWEQP-13421X	BASELINE [    ]
NASA FMEA #: EVA WINCH 3L	NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 13421  
ITEM: EVA WINCH AND MOUNT ASSEMBLY HOOK

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/22/87  
ASSESSMENT ID: CRWEQP-13422X  
NASA FMEA #: EVA WINCH 3J

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 13422  
ITEM: EVA WINCH AND MOUNT ASSEMBLY INTERIOR COIL  
SPRING

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/87	NASA DATA:
ASSESSMENT ID: CRWEQP-13620X	BASELINE [    ]
NASA FMEA #: PRD-6	NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 13620  
ITEM: PAYLOAD RETENTION DEVICE HOUSING ASSEMBLY

LEAD ANALYST: S.K. SINCLAIR

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS		CIL ITEM
		A	B	C
NASA	[ 1 /1 ]	[    ]	[    ]	[    ]
IOA	[ 1 /1 ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]
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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/87  
ASSESSMENT ID: CRWEQP-13621X  
NASA FMEA #: PRD-3B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 13621  
ITEM: PAYLOAD RETENTION DEVICE HOOK LATCH

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 11/22/87	NASA DATA:
ASSESSMENT ID: CRWEQP-13808X	BASELINE [    ]
NASA FMEA #: SNATCH BLOCK - 2B	NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 13808  
ITEM: SNATCH BLOCK ASSEMBLY HOOK LATCH

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY	SCREENS		CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE:	11/19/87	NASA DATA:
ASSESSMENT ID:	CRWEQP-13809X	BASELINE [   ]
NASA FMEA #:	SNATCH BLOCK 2B	NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 13809  
ITEM: SNATCH BLOCK ASSEMBLY HOOK LATCH

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[   ] *
IOA	[ 3 /3 ]	[   ]	[   ]	[   ]	[   ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[   ]

## RECOMMENDATIONS: (If different from NASA)

[ 3 /3 ]	[   ]	[   ]	[   ]	[   ]
				(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[   ]
INADEQUATE	[   ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS. 3/3  
CRITICALITY IS MORE REALISTIC AND ISSUE WILL BE DISCUSSED WITH  
NASA SUBSYSTEM MANAGER.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15182X  
NASA FMEA #: 1.1.2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15182  
ITEM: MANUAL SHUT OFF VALVE (MV3)

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[   /   ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]	[    ]	[    ]	[    ]	[    ]
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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15183X  
NASA FMEA #: 1.1.3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15183  
ITEM: MANUAL SHUT OFF VALVE (MV3)

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15184X  
NASA FMEA #: 1.3.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15184  
ITEM: HOT WATER TANK O-RING

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15185X  
NASA FMEA #: 1.4.2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15185  
ITEM: RECIRCULATION PUMP (P1) SEAL

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15186X  
NASA FMEA #: 1.5.2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15186  
ITEM: REHYDRATION PUMP (P2)

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15187X  
NASA FMEA #: 1.6.3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15187  
ITEM: COLD WATER RECIRCULATION VALVE (SV1)

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15188X  
NASA FMEA #: 1.7.3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15188  
ITEM: RHS COLD WATER RECIRCULATION VALVE (SV2)

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15189X  
NASA FMEA #: 1.8.3

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15189  
ITEM: RHS OUTLET SOLENOID VALVE (SV3)

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[   ]	[   ]	[   ]	[   ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[   ]
COMPARE	[   /   ]	[ N ]	[ N ]	[ N ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]   [   ]   [   ]   [   ]   [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15190X  
NASA FMEA #: 1.9.3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15190  
ITEM: RHS CHILLED WATER FEED SOLENOID VALVE (SV4)

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15191X  
NASA FMEA #: 1.10.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15191  
ITEM: CHECK VALVE

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15192X  
NASA FMEA #: 1.10.2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15192  
ITEM: CHECK VALVE

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15193X  
NASA FMEA #: 1.10.3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15193  
ITEM: CHECK VALVE SEAL

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15194X  
NASA FMEA #: 1.11.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15194  
ITEM: MIXING VALVE (MV2)

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15195X  
NASA FMEA #: 1.12.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15195  
ITEM: MICROBIAL CHECK VALVE

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15196X  
NASA FMEA #: 1.12.2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15196  
ITEM: MICROBIAL CHECK VALVE SEAL

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

REMARKS: ADEQUATE [    ]  
INADEQUATE [    ]

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15197X  
NASA FMEA #: 1.13.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15197  
ITEM: LINES AND FITTINGS (SEALS)

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87	NASA DATA:
ASSESSMENT ID: CRWEQP-15198X	BASELINE [    ]
NASA FMEA #: 1.13.2	NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15198  
ITEM: LINES AND FITTINGS (SEALS)

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY	SCREENS		CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ /N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ] (ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

## REMARKS:

A RESTRICTED FLOW COULD RESULT IN LOSS OF THE GALLEY. A DIFFERENCE IN GROUND RULES ACCOUNTS FOR THE SLIGHT DIFFERENCE IN THE CRITICALITY RATINGS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15199X  
NASA FMEA #: 1.14.2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15199  
ITEM: RHS NEEDLE SEAL

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15200X  
NASA FMEA #: 1.15.2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15200  
ITEM: TEMP GAGE SEAL

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15203X  
NASA FMEA #: 1.16.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15203  
ITEM: RTD SEAL

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[    ]
RECOMMENDATIONS: (If different from NASA)					
	[    /    ]	[    ]	[    ]	[    ]	[    ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15204X  
NASA FMEA #: 2.1.3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15204  
ITEM: WATER HEATER SW (S2)

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	A	B	C	CIL ITEM
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15205X  
NASA FMEA #: 2.2.3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15205  
ITEM: OVEN HEATER SWITCH (S1)

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	A	B	C	CIL ITEM
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15206X  
NASA FMEA #: 2.3.3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15206  
ITEM: OVEN BLOWER SWITCH (S3)

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15207X  
NASA FMEA #: 2.9.2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15207  
ITEM: WATER HEATER STRIP HEATER (HR1-HR6)

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC			REDUNDANCY SCREENS			CIL ITEM
	A	B	C				
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]	[    ]	*
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]	[    ]	
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]	[    ]	

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15208X  
NASA FMEA #: 2.10.3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15208  
ITEM: WATER HEATER STRIP HEATER THERMOSTAT S1-S12

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	A	B	C	CIL ITEM
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15209X  
NASA FMEA #: 2.11.2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15209  
ITEM: OVEN STRIP HEATERS (HR1-HR4)

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15210X  
NASA FMEA #: 2.12.3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15210  
ITEM: OVEN HEATER THERMOSTATS (S1-S8)

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15211X  
NASA FMEA #: 2.13.3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15211  
ITEM: HOT WATER THERMOSTAT (S13)

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	A	B	C	CIL ITEM
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-15212X  
NASA FMEA #: 2.14.1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15212  
ITEM: WIRE HARNESS

LEAD ANALYST: B. RICHARD

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-15325X  
NASA FMEA #: OWDA-2A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15325  
ITEM: OWDA SLIDE ASSEMBLY

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-15326X  
NASA FMEA #: OWDA-2B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15326  
ITEM: OWDA SLIDE ASSEMBLY

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-15327X  
NASA FMEA #: OWDA-2D

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15327  
ITEM: REHYDRATION NEEDLE

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-15328X  
NASA FMEA #: OWDA-2E

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15328  
ITEM: O-RING

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	A	B	C	CIL ITEM
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NEW ITEM ADDED DURING ASSESSMENT PROCESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-15329X  
NASA FMEA #: OWDA-3C

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15329  
ITEM: SOLENOID VALVE - OWDA

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.  
DISAGREE, HOWEVER, WITH NASA ASSIGNED CRITICALITIES AND ISSUE  
WILL BE DISCUSSED WITH SUBSYSTEM MANAGER.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-15330X  
NASA FMEA #: OWDA-4A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15330  
ITEM: OPERATIONAL WATER DISPENSER PRESSURE REGULATOR

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/02/87  
ASSESSMENT ID: CRWEQP-15331X  
NASA FMEA #: OWDA-5C

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15331  
ITEM: BYPASS VALVE

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.  
RECOMMEND USING IOA CRITICALITY SINCE NASA FMEA DOES NOT CONSIDER  
THE WORST CASE OF A LEAK CAUSING THE OWDA TO BECOME INOPERABLE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/03/87  
ASSESSMENT ID: CRWEQP-15332X  
NASA FMEA #: OWDA-6C

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15332  
ITEM: OWDA WATER SELECTION VALVE

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]      [ P ]      [ P ]      [ P ]      [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS. NASA FMEA DOES NOT TAKE LEAK TO WORST CASE CONDITION OF INADEQUATE WATER FLOW REACHING THE REHYDRATION NEEDLE. LACK OF WATER FOR REHYDRATION WILL RENDER OWDA INOPERABLE AND IF ALL REDUNDANCY IS LOST, WILL RESULT IN MISSION TERMINATION.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/03/87  
ASSESSMENT ID: CRWEQP-15333X  
NASA FMEA #: OWDA-10B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15333  
ITEM: HOSE ASSEMBLY

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/03/87  
ASSESSMENT ID: CRWEQP-15334X  
NASA FMEA #: OWDA-11B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15334  
ITEM: OWDA - ROTARY SWITCH

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/03/87  
ASSESSMENT ID: CRWEQP-15335X  
NASA FMEA #: OWDA-12A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15335  
ITEM: OWDA - ON/OFF SWITCH

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/03/87  
ASSESSMENT ID: CRWEQP-15336X  
NASA FMEA #: OWDA-6B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15336  
ITEM: OWDA - ON/OFF SWITCH

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/03/87  
ASSESSMENT ID: CRWEQP-15337X  
NASA FMEA #: OWDA-13A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15337  
ITEM: OWDA - FILL SWITCH

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/03/87  
ASSESSMENT ID: CRWEQP-15338X  
NASA FMEA #: OWDA-13B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15338  
ITEM: OWDA - FILL SWITCH

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/04/87  
ASSESSMENT ID: CRWEQP-15403X  
NASA FMEA #: CWDA-17A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15403  
ITEM: CWDA - CONNECTION TO ORBITER

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

CRITICALITY FLIGHT HDW/FUNC		REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-16409X  
NASA FMEA #: TREADMILL 1B

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 16409  
ITEM: TREADMILL QUICK DISCONNECT

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ N /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ]    [    ]    [    ]    [    ]    [ D ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA FMEA CURRENTLY REFLECTS A CIL RANKING FOR THE TREADMILL DISCONNECTS. IOA BELIEVES IT WILL BE CHANGED TO A NON-CIL LISTING TO COMPLY WITH A CCB DIRECTIVE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/10/87  
ASSESSMENT ID: CRWEQP-16410X  
NASA FMEA #: TREADMILL 8A

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 16410  
ITEM: TREADMILL MONITOR BATTERIES

LEAD ANALYST: S.K. SINCLAIR

## ASSESSMENT:

	CRITICALITY			REDUNDANCY SCREENS			CIL ITEM
	FLIGHT			A	B	C	
	HDW/FUNC						
NASA	[ 3 / 3 ]			[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]			[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]			[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NEW ITEM ADDED TO IOA DATA BASE DURING ASSESSMENT PROCESS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/11/88  
ASSESSMENT ID: CRWEQP-16512X  
NASA FMEA #: 07-1-725101-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 16512  
ITEM: CREWMAN OPTICAL ALIGNMENT SIGHT (COAS)  
ADJUSTMENT MECHANISM

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/11/88  
ASSESSMENT ID: CRWEQP-16513X  
NASA FMEA #: 07-1-725101-3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 16513  
ITEM: CREWMAN OPTICAL ALIGNMENT SIGHT (COAS) AFT MOUNT  
ASSEMBLY

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/12/88  
ASSESSMENT ID: CRWEQP-16514X  
NASA FMEA #: 07-1-725103-4

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 16514  
ITEM: CREWMAN OPTICAL ALIGNMENT SIGHT (COAS) AFT MOUNT  
ASSEMBLY

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/12/88  
ASSESSMENT ID: CRWEQP-16515X  
NASA FMEA #: 07-1-725103-5

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 16515  
ITEM: CREWMAN OPTICAL ALIGNMENT SIGHT (COAS) AFT MOUNT  
ASSEMBLY

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]
RECOMMENDATIONS: (If different from NASA)					
	[    /    ]	[    ]	[    ]	[    ]	[    ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE:	1/12/88	NASA DATA:
ASSESSMENT ID:	CRWEQP-16516X	BASELINE [    ]
NASA FMEA #:	07-1-725103-6	NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 16516  
ITEM: CREWMAN OPTICAL ALIGNMENT SIGHT (COAS) AFT  
BRACKET ASSEMBLY

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

REMARKS:



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/12/88  
ASSESSMENT ID: CRWEQP-16517X  
NASA FMEA #: 07-1-725103-7

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 16517  
ITEM: CREWMAN OPTICAL ALIGNMENT SIGHT (COAS) AFT  
BRACKET ASSEMBLY

LEAD ANALYST: H. SAXON

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:



**APPENDIX D**

**POTENTIAL CRITICAL ITEMS**

**APPENDIX D  
POTENTIAL CRITICAL ITEMS**

NASA FMEA	MDAC-ID	FLIGHT	ITEM	FAILURE MODE
07-1B-SW1-1	2101	1/1	EVA SLIDEWIRE ASSEMBLY-SLIDE	STRUCTURAL FAILURE
07-1B-SW3-1	2103	2/2	EVA SLIDEWIRE ASSEMBLY-STOP	BREAKS FREE
07-1B-SW6-1	2104	2/1R	EVA SLIDEWIRE- END FITTINGS	STRUCTURAL FAILURE
07-1B-SW6-1	2105	2/1R	EVA SLIDEWIRE ASMBLY-COTTR PIN	STRUCTURAL FAILURE
07-1B-SW5-1	2107	2/1R	EVA SLIDEWIRE ASSEMBLY - QD PIN	FAILS TO OPEN
07-1B-SW5-1	2108	2/1R	EVA SLIDEWIRE ASSEMBLY-SUPPORT	STRUCTURAL FAILURE
07-1B-SW1-1	2109	1/1	EVA SLIDEWIRE	STRUCTURAL FAILURE
JSC17067B-1A	2200	1/1	ERCM TETHER- SMALL HOOK	STRUCTURAL FAILURE
JSC170671B-1A	2203	1/1	ERCM TETHER-CABLE	STRUCTURAL FAILURE
JSC17067B-1A	2204	1/1	ERCM SAFETY TETHER- CABLE ATTACH POINTS	STRUCTURAL FAILURE
JSC17067-1A	2205	1/1	ERCM TETHER- REEL CASE	STRUCTURAL FAILURE
JSC17067B-1A	2212	1/1	ERCM SAFETY TETHER-"D" RING	STRUCTURAL FAILURE
JSC17067B-2A	2300	1/1	WAIST TETHER-HOOKS	STRUCTURAL FAILURE
JSC17067B-2A	2303	1/1	WAIST TETHER-HOOKS	INADVERTENT OPENING
JSC17067B-2A	2304	1/1	WAIST TETHER-NOMEX WEBBING	STRUCTURAL FAILURE
JSC17067B-2A	2305	1/1	WAIST TETHER-NOMEX WEBBING	FAILS TO TEARAWAY AS DESIGNED
JSC17067B-2A	2306	1/1	WAIST TETHER-NOMEX WEBBING	TEARS AT ATTACH POINTS
TUBE CUTTER 6G	3100	2/1R	TUBE CUTTER CUTTING WHEEL	STRUCTURAL FAILURE
TUBE CUTTER 6I	3101	2/1R	TUBE CUTTER CUTTING WHEEL	PHYSICAL BINDING/ JAMMING
TUBE CUTTER 6A	3102	2/1R	TUBE CUTTER CUTTING WHEEL SLIDE	PHYSICAL BINDING/ JAMMING
TUBE CUTTER 6F	3103	2/1R	TUBE CUTTER RATCHET WHEEL	PHYSICAL BINDING/ JAMMING
TUBE CUTTER 6D	3104	2/1R	TUBE CUTTER SMALL RATCHET ASMB	FAILS TO OPEN/CLOSE
TUBE CUTTER 6D	3105	2/1R	TUBE CUTTER SMALL RATCHET ASMB	FAILS TO REMAIN OPEN/CLOSE
TUBE CUTTER 6C	3106	3/1R	TUBE CUTTER PAWL	FAILS TO ENGAGE NOTCHES
TUBE CUTTER 6J	3107	3/1R	TUBE CUTTER PAWL	STRUCTURAL FAILURE

NASA FMEA	MDAC-ID	FLIGHT	ITEM	FAILURE MODE
TUBE CUTTER 6L	3109	2/1R	TUBE CUTTER ROLLER LINK	FAILS TO OPEN
TUBE CUTTER 6B	3111	2/1R	TUBE CUTTER LRG RATCHET HANDLE	STRUCTURAL FAILURE
TUBE CUTTER 6B	3112	2/1R	TUBE CUTTER SML RATCHET HANDLE	STRUCTURAL FAILURE
CENTERLINE LATC	3203	1/1	CNTRL LATCH BYPASS TOOL LATCH	FAILS TO REMAIN OPEN
CENTERLINE LATC	3204	1/1	CNTRL LATCH BYPASS TOOL WHEEL	PHYSICAL BINDING/ JAMMING
CENTERLINE LATC	3206	1/1	CNTRL LATCH BYPASS RATCHET HND	STRUCTURAL FAILURE
3-POINT LATCH 5	3300	1/1	3-POINT LATCH TOOL RTCHT HANDL	STRUCTURAL FAILURE
	3301	1/1	3-POINT LATCH TOOL HOOK	STRUCTURAL FAILURE
3-POINT LATCH 5	3302	1/1	3-POINT LATCH TOOL RTCHT WHEEL	PHYSICAL BINDING/ JAMMING
CENTERLINE LATC	3303	1/1	3-POINT LATCH TOOL RTCHT WHEEL	STRUCTURAL FAILURE
CENTERLINE LATC	3304	1/1	3-POINT LATCH TOOL RATCHET WHEEL	PHYSICAL BINDING/ JAMMING
CENTERLINE LATC	3306	1/1	3-POINT LATCH TOOL ROLLER SHOE	STRUCTURAL FAILURE
3-POINT LATCH 5	3307	1/1	3-POINT LATCH TOOL COMPENSATOR	STRUCTURAL FAILURE
3-POINT LATCH 5	3308	1/1	3-POINT LATCH TOOL ROLLER SHOE	FAILS TO REMAIN OPEN
EVA WINCH 3A	3400	2/1R	EVA WINCH AND MOUNT ASMBLY HOOK	STRUCTURAL FAILURE
EVA WINCH 3G	3401	2/1R	EVA WINCH AND MOUNT ASMBLY RTCHT	STRUCTURAL FAILURE
EVA WINCH 3F	3402	2/1R	EVA WINCH AND MOUNT ASMBLY RTCHT	PHYSICAL BINDING/ JAMMING
EVA WINCH 3E	3403	2/1R	EVA WINCH AND MNT ASM LRG CON HND	STRUCTURAL FAILURE
EVA WINCH 3F	3404	2/1R	EVA WINCH AND MNT ASM LRG CON HND	PHYSICAL BINDING/ JAMMING
EVA WINCH 3E	3405	2/1R	EVA WINCH AND MNT RATCHET HANDLE	STRUCTURAL FAILURE
EVA WINCH 3C	3406	2/1R	EVA WINCH AND MNT ASMBLY ROPE	PHYSICAL BINDING/ JAMMING
EVA WINCH 3B	3407	2/1R	EVA WINCH AND MOUNT ASMBLY ROPE	STRUCTURAL FAILURE
EVA WINCH 3F	3409	2/1R	EVA WINCH AND MNT ASM RTCHT WHEEL	PHYSICAL BINDING/ JAMMING
	3413	2/1R	EVA WINCH AND MNT ASM MNTG PLATE	STRUCTURAL FAILURE

NASA FMEA	MDAC-ID	FLIGHT	ITEM	FAILURE MODE
EVA WINCH 3H	3414	2/1R	EVA WINCH AND MNT ASM GEARS	STRUCTURAL FAILURE
EVA WINCH 2D	3415	2/1R	EVA WINCH AND MNT ASM GEARS	PHYSICAL BINDING/ JAMMING
EVA WINCH 3O	3416	2/1R	EVA WINCH AND MNT ASM PIP PIN	FAILS TO REMAIN ATTACHED
EVA WINCH 3C	3417	2/1R	EVA WINCH AND MNT ASM ROPE SPOOL	PHYSICAL BINDING/ JAMMING
WINCH ADAPTER 1	3500	2/1R	EVA WINCH ADAPTER ASM ROPE	STRUCTURAL FAILURE
WINCH ADAPTER 1	3501	2/1R	EVA WINCH ADAPTER ASM ROPE	PHYSICAL BINDING/ JAMMING
WINCH ADAPTER 1	3502	2/1R	EVA WINCH ADAPTER ASM HOOK	STRUCTURAL FAILURE
WINCH ADAPTER 1	3504	2/1R	EVA WINCH ADAPTER ASM ROPE CAM	STRUCTURAL FAILURE
WINCH ADAPTER 1	3505	2/1R	EVA WINCH ADAPTER ASM ROPE CAM	PHYSICAL BINDING/ JAMMING
WINCH ADAPTER 1	3506	2/1R	EVA WINCH ADAPTER ASM ROPE PLT	STRUCTURAL FAILURE
WINCH ADAPTER 1	3509	2/1R	EVA WINCH ADAPTER ASM ROPE SPL	PHYSICAL BINDING/ JAMMING
PRD-5B	3600	2/1R	PRD ASM RATCHET HANDLE	STRUCTURAL FAILURE
PRD-2	3601	1/1	PRD ASM HOOK	STRUCTURAL FAILURE
	3602	2/1R	PRD ASM HOOK LATCH	STRUCTURAL FAILURE
PRD-3A	3603	2/1R	PRD ASM HOOK LATCH	FAILS TO CLOSE
PRD-5A	3604	1/1	PRD ASM RATCHET GEAR	PHYSICAL BINDING/ JAMMING
PRD-5A	3605	1/1	PRD ASM RATCHET GEAR	STRUCTURAL FAILURE
PRD-1A	3606	1/1	PRD ASM KEVLAR WEB STRAP	STRUCTURAL FAILURE
PRD-5A	3608	1/1	PRD ASM RATCHET SHAFT PIN	STRUCTURAL FAILURE
PRD-5A	3612	1/1	PRD ASM RATCHET LATCH	STRUCTURAL FAILURE
PRD-5A	3613	1/1	PRD ASM RATCHET LATCH	FAILS TO CONTACT RATCHET WHEEL
PRD-5A	3614	1/1	PRD ASM RATCHET ASM RELEASE	FAILS TO CLOSE
PRD-5B	3615	1/1	PRD ASM RATCHET ASM RELEASE	PHYSICAL BINDING/ JAMMING
PRD-2	3616	1/1	PRD ASM HOOK/WEB CONNECT PIN	STRUCTURAL FAILURE
SNATCH BLOCK 2C	3800	2/1R	SNATCH BLOCK ASM HOOK LATCH	FAILS TO OPEN
SNATCH BLOCK 2F	3801	2/1R	SNATCH BLOCK ASM HOOK SWIVEL	PHYSICAL BINDING/ JAMMING

NASA FMEA	MDAC-ID	FLIGHT	ITEM	FAILURE MODE
SNATCH BLOCK 2G	3805	2/1R	SNATCH BLOCK ASM	FAILS TO REMAIN
			HOOK ASM LATCH BLK	CLOSED
SNATCH BLOCK 2A	3807	2/1R	SNATCH BLOCK	STRUCTURAL FAILURE
			ASSEMBLY HOOK	
JSC22453-2A	11216	1/1	EMU LIGHT ASSEMBLY	RAPID
				VENT/EXPLOSION
TUBE CUTTER 6H	13113	2/1R	TUBE CUTTER PAWL	PHYSICAL BINDING/
				JAMMING
PRD-6	13620	1/1	PAYLOAD RETENTION	STRUCTURAL FAILURE
			DEVICE HOUSING	
07-1-725103-4	16514	2/1R	CREWMAN OPTICAL	SEAT FAILS TO
			ALIGNMENT	ADJUST UP/DOWN
07-1-725103-7	16517	2/1R	CREWMAN OPTICAL	SEAT FAILS TO
			ALIGNMENT	ADJUST
				BACK/FORWARD





## APPENDIX E

### DETAILED ANALYSIS

This appendix contains the IOA analysis worksheets supplementing previous results reported in STSEOS Working Paper 1.0-WP-VA87001-01, Analysis of the Crew Equipment Subsystem, (02 November 1987). Prior results were obtained independently and documented before starting the FMEA/CIL assessment activity. Supplemental analysis was performed to address failure modes not previously considered by the IOA. Each sheet identifies the hardware item being analyzed, parent assembly and function performed. For each failure mode possible causes are identified, and hardware and functional criticality for each mission phase are determined as described in NSTS 22206, Instructions for Preparation of FMEA and CIL. Failure mode effects are described at the bottom of each sheet and worst case criticality is identified at the top.

#### LEGEND FOR IOA ANALYSIS WORKSHEETS

-----

##### Hardware Criticalities:

- 1 = Loss of life or vehicle
- 2 = Loss of mission or next failure of any redundant item (like or unlike) could cause loss of life/vehicle
- 3 = All others

##### Functional Criticalities:

- 1R = Redundant hardware items (like or unlike) all of which, if failed, could cause loss of life or vehicle.
- 2R = Redundant hardware items (like or unlike) all of which, if failed, could cause loss of mission.

##### Redundancy Screen A:

- 1 = Is Checked Out PreFlight
- 2 = Is Capable of Check Out PreFlight
- 3 = Not Capable of Check Out PreFlight
- NA = Not Applicable

##### Redundancy Screens B and C:

- P = Passed Screen
- F = Failed Screen
- NA = Not Applicable

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 11215 ABORT: /NA

ITEM: EMU LIGHT ASSEMBLY - BATTERY CELL  
FAILURE MODE: TOXIC VENTING

LEAD ANALYST: H. SAXON SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) EMU LIGHT ASSEMBLY
- 3) BATTERY CELL
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/3	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: PAYLOAD BAY  
PART NUMBER: 10161-20072-01

CAUSES: VIBRATION, ELECTRICAL SHORT

EFFECTS/RATIONALE:

AN ELECTRICAL SHORT MAY CAUSE THE ELECTROLYTE TO VENT TOXIC GASES. THE BATTERIES ARE INSPECTED AFTER EVERY FLIGHT. ONCE A BATTERY HAS BEEN USED, IT IS REPLACED WITH A NEW ONE.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 1/1  
MDAC ID: 11216 ABORT: /NA

ITEM: EMU LIGHT ASSEMBLY - BATTERY CELL  
FAILURE MODE: RAPID VENTING/EXPLOSION

LEAD ANALYST: H. SAXON SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) EMU LIGHT ASSEMBLY
- 3) BATTERY CELL
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	1/1	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: PAYLOAD BAY  
PART NUMBER: 10161-20072-01

CAUSES: INTERNAL SHORT

EFFECTS/RATIONALE:

AN INTERNAL SHORT MAY CAUSE RAPID VENTING OF TOXIC GASES OR EXPLOSION. PAST EXPERIENCE AND ACCEPTANCE TESTING SHOW NO FAILURES HAVE OCCURRED.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 11217 ABORT: /NA

ITEM: EMU LIGHT ASSEMBLY - THERMOSTAT  
FAILURE MODE: FAILS TO OPEN

LEAD ANALYST: H. SAXON SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) EMU LIGHT ASSEMBLY
- 3) THERMOSTAT
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/3	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: PAYLOAD BAY  
PART NUMBER: 10161-20064-01

CAUSES: CONTAMINATION, MISHANDLING/ABUSE, VIBRATION

EFFECTS/RATIONALE:

FAILURE OF THE THERMOSTAT COULD ALLOW THE BATTERIES TO BECOME TOO HOT. THE BATTERIES COULD VENT TOXIC GAS OR EXPLODE.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 11218 ABORT: /NA

ITEM: EMU LIGHT ASSEMBLY - THERMOSTAT  
FAILURE MODE: FAILS TO CLOSE

LEAD ANALYST: H. SAXON SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) EMU LIGHT ASSEMBLY
- 3) THERMOSTAT
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: PAYLOAD BAY  
PART NUMBER: 10161-20064-01

CAUSES: CONTAMINATION, MISHANDLING/ABUSE, VIBRATION

EFFECTS/RATIONALE:

FAILURE OF THE THERMOSTAT COULD ALLOW THE BATTERIES TO BECOME TOO HOT. THE BATTERIES COULD VENT TOXIC GAS OR EXPLODE.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 11219 ABORT: /NA

ITEM: EMU LIGHT ASSEMBLY - LIGHT SWITCH  
FAILURE MODE: STICKS ON IN TWO BULB MODE

LEAD ANALYST: H. SAXON SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) EMU LIGHT ASSEMBLY
- 3) LIGHT SWITCH
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	HDW/FUNC	CRITICALITIES	ABORT	HDW/FUNC
PRELAUNCH:	/NA		RTLS:	/NA
LIFTOFF:	/NA		TAL:	/NA
ONORBIT:	3/2R		AOA:	/NA
DEORBIT:	/NA		ATO:	/NA
LANDING/SAFING:	/NA			

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: PAYLOAD BAY  
PART NUMBER: 10161-20064-01

CAUSES:

EFFECTS/RATIONALE:  
THE BATTERIES WOULD BE DISCHARGED FASTER THAN PLANNED.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 11220 ABORT: /NA

ITEM: EMU LIGHT ASSEMBLY - LIGHT SWITCH  
FAILURE MODE: STICKS IN OFF POSITION

LEAD ANALYST: H. SAXON SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) EMU LIGHT ASSEMBLY
- 3) LIGHT SWITCH
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: PAYLOAD BAY  
PART NUMBER: 10161-20064-01

CAUSES:

EFFECTS/RATIONALE:

LOSS OF A LIGHT COULD MAKE PERFORMANCE OF TASKS MORE DIFFICULT.  
OTHER LIGHTS ARE AVAILABLE.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 11221 ABORT: /NA

ITEM: EMU LIGHT ASSEMBLY - FINGER CONTACT ASSEMBLY  
FAILURE MODE: LOSS OF BATTERY POWER TO CIRCUIT

LEAD ANALYST: H. SAXON SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) EMU LIGHT ASSEMBLY
- 3) FINGER CONTACT ASSEMBLY
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: PAYLOAD BAY  
PART NUMBER: 10161-20041-02

CAUSES:

EFFECTS/RATIONALE:

LOSS OF POWER TO THE SEQUENCING CIRCUIT MEANS LOSS OF LIGHT ASSEMBLY FUNCTION. EXTRA LIGHT ASSEMBLY IS AVAILABLE.

REFERENCES:



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 11222 ABORT: /NA

ITEM: EMU LIGHT ASSEMBLY - ELECTRICAL CONNECTOR  
FAILURE MODE: LOSS OF POWER TO SEQUENCING CIRCUIT

LEAD ANALYST: H. SAXON SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) EMU LIGHT ASSEMBLY
- 3) ELECTRICAL CONNECTOR
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: PAYLOAD BAY  
PART NUMBER: ST20C1080-02

CAUSES:

EFFECTS/RATIONALE:

LOSS OF POWER TO THE SEQUENCING CIRCUIT MEANS LOSS OF LIGHT  
ASSEMBLY FUNCTION. EXTRA LIGHT ASSEMBLY IS AVAILABLE.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/14/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 11325 ABORT: /NA

ITEM: OBS - SIGNAL CONDITIONER - BATTERY CONTACT  
ASSEMBLY  
FAILURE MODE: LOSS OF OUTPUT

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) OPERATIONAL BIOINSTRUMENTATION SYSTEM
- 3) SIGNAL CONDITIONER
- 4) BATTERY CONTACT ASSEMBLY
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: CREW MODULE  
PART NUMBER: TBD

CAUSES: CONTAMINATION, MECHANICAL SHOCK, PIECE-PART FAILURE,  
STRUCTURAL FAILURE, VIBRATION

EFFECTS/RATIONALE:

LOSS OF THE BATTERY CONTACT ASSEMBLY WILL MEAN LOSS OF SIGNAL  
CONDITIONER POWER AND LOSS OF THE SIGNAL CONDITIONER. THE SIGNAL  
CONDITIONER FROM THE SECOND OBS CAN BE USED AS A REPLACEMENT ITEM  
BUT LOSS OF ALL REDUNDANCY DURING USE ON AN IVA CREWMEMBER  
CAN RESULT IN A LOSS OF MISSION.

REFERENCES: JSC-12770

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/14/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 11326 ABORT: /NA

ITEM: OBS - SIGNAL CONDITIONER  
FAILURE MODE: OPEN (ELECTRICAL), SHORTED

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) OPERATIONAL BIOINSTRUMENTATION SYSTEM
- 3) SIGNAL CONDITIONER
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: CREW MODULE  
PART NUMBER: TBD

CAUSES: CONTAMINATION, MECHANICAL SHOCK, PIECE-PART FAILURE,  
VIBRATION

EFFECTS/RATIONALE:

AN OPEN OR SHORT CIRCUIT WITHIN THE OBS SIGNAL CONDITIONER WILL  
MEAN THE LOSS OF THE SIGNAL CONDITIONER. LOSS OF ALL REDUNDANCY  
WHEN THE ITEM IS REQUIRED FOR USE BY AN IVA CREWMEMBER CAN RESULT  
IN A LOSS OF MISSION.

REFERENCES: JSC-12770

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/14/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 11327 ABORT: /NA

ITEM: OBS - IVA CABLE  
FAILURE MODE: OPEN (ELECTRICAL), SHORTED

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) OPERATIONAL BIOINSTRUMENTATION SYSTEM
- 3) IVA CABLE
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: CREW MODULE  
PART NUMBER: TBD

CAUSES: MECHANICAL SHOCK, PIECE-PART FAILURE, CONTAMINATION

EFFECTS/RATIONALE:

AN OPEN OR SHORTED CIRCUIT WITHIN THE IVA CABLE WILL RESULT IN A LOSS OF THE OBS. IF THE OBS IS REQUIRED FOR USE ON AN IVA CREWMEMBER, THE LOSS COULD RESULT IN A LOSS OF MISSION.

REFERENCES: JSC-12770

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 11/17/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 11433 ABORT: /NA

ITEM: PORTABLE FOOT RESTRAINT ARTICULATING SOCKET  
ASSEMBLY QUICK RELEASE PIN  
FAILURE MODE: CANNOT REMOVE PIN

LEAD ANALYST: H. SAXON SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) PORTABLE FOOT RESTRAINT
- 3) ARTICULATING SOCKET ASSEMBLY
- 4) QUICK RELEASE PIN
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: PAYLOAD BAY  
PART NUMBER: 10159-10035

CAUSES: CONTAMINATION, MISHANDLING/ABUSE

EFFECTS/RATIONALE:

QUICK RELEASE PIN CANNOT BE REMOVED. PLATFORM ASSEMBLY CANNOT BE  
DETACHED FROM ARTICULATING ASSEMBLY.

REFERENCES: JSC-20466, 10155-10035

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 11/19/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 12110 ABORT: /NA

ITEM: EVA SLIDEWIRE CUSHION  
FAILURE MODE: STRUCTURAL FAILURE

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) EVA SLIDEWIRE ASSEMBLY
- 3) DEPLOYMENT MECHANISM
- 4) CUSHION
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC	
PRELAUNCH:	/NA	RTLS:	/NA	
LIFTOFF:	/NA	TAL:	/NA	
ONORBIT:	3/3	AOA:	/NA	
DEORBIT:	/NA	ATO:	/NA	
LANDING/SAFING:	/NA			

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: PAYLOAD BAY  
PART NUMBER:

CAUSES:

EFFECTS/RATIONALE:

THE CUSHION FORMS A PAD BETWEEN THE END FITTING AND THE RADIATOR.  
IN THE ABSENCE OF ADDITIONAL DEFORMATION OF THE YOKE/DEPLOYMENT  
MECHANISM, THE FAILURE OF THE CUSHION WILL HAVE NO EFFECT.

REFERENCES: JSC-12770

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 11/18/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 12214 ABORT: /NA

ITEM: ERCM SAFETY TETHER - CABLE THIMBLE  
FAILURE MODE: STRUCTURAL FAILURE

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) ERCM SAFETY TETHER
- 3) CABLE THIMBLE
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/3	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: PAYLOAD BAY  
PART NUMBER:

CAUSES: MECHANICAL SHOCK, MISHANDLING/ABUSE

EFFECTS/RATIONALE:  
NO EFFECT ON CREW OR VEHICLE SAFETY.

REFERENCES: 10162-10062

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/02/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 2/1R  
MDAC ID: 13113 ABORT: /NA

ITEM: TUBE CUTTER PAWL  
FAILURE MODE: PHYSICAL BINDING/JAMMING

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) TUBE CUTTER
- 3) PAWL
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	2/1R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: PAYLOAD BAY  
PART NUMBER: SED33101368

CAUSES: CONTAMINATION, PIECE-PART FAILURE

EFFECTS/RATIONALE:

UNABLE TO COMPLETE CUTTING SEQUENCE. FAILURE RESULTS IN LOSS OF TOOL FUNCTION. USED TO CUT DRIVER TUBES ON PAYLOAD BAY DOOR. IF UNABLE TO CLOSE DOORS THE VEHICLE IS UNABLE TO DEORBIT. LOSS OF ALL REDUNDANCY WILL RESULT IN LOSS OF LIFE AND VEHICLE.

REFERENCES: JSC-12770, SFOM VOL 15, JSC-20466, SED33101368



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/02/87  
SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 13309

HIGHEST CRITICALITY HDW/FUNC  
FLIGHT: 3/3  
ABORT: /NA

ITEM: SAFETY RELEASE  
FAILURE MODE: FAILS TO RELEASE

LEAD ANALYST: S.K. SINCLAIR

SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) 3-POINT LATCH TOOL
- 3) SAFETY RELEASE
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/3	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: PAYLOAD BAY  
PART NUMBER: SED33101327

CAUSES: CONTAMINATION

EFFECTS/RATIONALE:

SAFETY RELEASE FAILS TO RELEASE. THE CREWMEMBER IS UNABLE TO (AUTOMATICALLY) SPRING THE TOOL OPEN TO GRAB THE LATCH. HOWEVER, THE CREWMEMBER CAN RATCHET THE TOOL UNTIL THE RELEASE MECHANISM BREAKS AND THE TOOL OPENS.

REFERENCES: JSC-12770, SFOM VOL 15, JSC-20466, SED33101327

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/02/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 13310 ABORT: /NA

ITEM: RELEASE SPRING  
FAILURE MODE: STRUCTURAL FAILURE

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) 3-POINT LATCH TOOL
- 3) RELEASE SPRING
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT		HDW/FUNC
PRELAUNCH:	/NA	RTLS:		/NA
LIFTOFF:	/NA	TAL:		/NA
ONORBIT:	3/3	AOA:		/NA
DEORBIT:	/NA	ATO:		/NA
LANDING/SAFING:	/NA			

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: PAYLOAD BAY  
PART NUMBER: SED33101327

CAUSES: PIECE-PART FAILURE

EFFECTS/RATIONALE:

UNABLE TO SPRING TOOL OPEN TO GRAB LATCH. CREWMEMBER CAN RATCHET TOOL UNTIL CONTACT IS MADE WITH LATCH.

REFERENCES: JSC-12770, SFOM VOL 15, JSC-20466, SED33101327

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 11/22/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 13418 ABORT: /NA

ITEM: EVA WINCH AND MOUNT ASSEMBLY PIP PIN  
FAILURE MODE: CANNOT BE REMOVED

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) EVA WINCH AND MOUNT ASSEMBLY
- 3) PIP PIN
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: PAYLOAD BAY  
PART NUMBER: SED331015170

CAUSES: CONTAMINATION, PIECE-PART FAILURE

EFFECTS/RATIONALE:

THE PIP PIN IS REMOVED ONLY DURING GROUND OPERATIONS AND HAS NO EFFECT ON ORBITAL OPERATIONS. IT IS BEING ADDED ONLY FOR COMPLETENESS AND AGREEMENT WITH NASA FMEAs.

REFERENCES: JSC-12770, SFOM VOL 15, JSC-20466, SED33101570

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 11/22/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 13419 ABORT: /NA

ITEM: EVA WINCH AND MOUNT ASSEMBLY PIP PIN  
FAILURE MODE: CANNOT BE INSERTED

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) EVA WINCH AND MOUNT ASSEMBLY
- 3) PIP PIN
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: PAYLOAD BAY  
PART NUMBER: SED331015170

CAUSES: CONTAMINATION, PIECE-PART FAILURE

EFFECTS/RATIONALE:

PIP PIN IS INSERTED ONLY DURING GROUND TURNAROUND OPERATION.  
THIS FALIURE HAS NO EFFECT ON CREW OR FLIGHT OPERATIONS AND IS  
INCLUDED ONLY FOR COMPLETENESS IN COMPARISON WITH NASA FMEAs.

REFERENCES: JSC-12770, SFOM VOL 15, JSC-20466, SED33101570

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 11/22/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 13420 ABORT: /NA

ITEM: EVA WINCH AND MOUNT ASSEMBLY HOOK  
FAILURE MODE: HOOK JAMS CLOSED

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) EVA WINCH AND MOUNT ASSEMBLY
- 3) HOOK
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	HDW/FUNC	CRITICALITIES ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/3	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: PAYLOAD BAY  
PART NUMBER: SED331015170

CAUSES: CONTAMINATION, MATERIAL DEFORMATION

EFFECTS/RATIONALE:

UNABLE TO ATTACH HOOK. LATCH CAN BE BENT OUT OF THE WAY AND HOOK  
SECURED WITH TAPE.

REFERENCES: JSC-12770, SFOM VOL 15, JSC-20466, SED33101570

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 11/22/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 13421 ABORT: /NA

ITEM: EVA WINCH AND MOUNT ASSEMBLY HOOK  
FAILURE MODE: HOOK JAMS OPEN

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) EVA WINCH AND MOUNT ASSEMBLY
- 3) HOOK
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/3	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: PAYLOAD BAY  
PART NUMBER: SED331015170

CAUSES: MATERIAL FAILURE

EFFECTS/RATIONALE:

UNABLE TO SECURE HOOK BY NORMAL METHODS. HOOK CAN BE SECURED WITH TAPE.

REFERENCES: JSC-12770, SFOM VOL 15, JSC-20466, SED33101570

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 11/22/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 13422 ABORT: /NA

ITEM: EVA WINCH AND MOUNT ASSEMBLY INTERIOR COIL SPRING  
FAILURE MODE: STRUCTURAL FAILURE (BREAKS)

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) EVA WINCH AND MOUNT ASSEMBLY
- 3) INTERIOR COIL SPRING
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/3	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: PAYLOAD BAY  
PART NUMBER: SED331015170

CAUSES: PIECE-PART FAILURE

EFFECTS/RATIONALE:

UNABLE TO USE AUTOMATIC REEL IN FEATURE. CREW STILL ABLE TO REEL  
IN MANUALLY.

REFERENCES: JSC-12770, SFOM VOL 15, JSC-20466, SED33101570

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/15/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 1/1  
MDAC ID: 13620 ABORT: /NA

ITEM: PAYLOAD RETENTION DEVICE HOUSING ASSEMBLY  
FAILURE MODE: STRUCTURAL FAILURE/FRACTURES

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) PAYLOAD RETENTION DEVICE
- 3) HOUSING ASSEMBLY
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/3	AOA:	/NA
DEORBIT:	1/1	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: PAYLOAD BAY  
PART NUMBER: 10163-10063-03

CAUSES: OVERLOAD, PIECE-PART FAILURE

EFFECTS/RATIONALE:

HOUSING ASSEMBLY BREAKS DURING ENTRY. THE RMS OR PAYLOAD COMES LOOSE IN THE PAYLOAD BAY WITH THE POSSIBILITY OF RESULTING DAMAGE TO THE VEHICLE AND POSSIBLE LOSS OF LIFE OF THE CREW.

REFERENCES: JSC-20466, 10163-10063



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/15/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/1R  
MDAC ID: 13621 ABORT: /NA

ITEM: PAYLOAD RETENTION DEVICE HOOK LATCH  
FAILURE MODE: FAILS TO OPEN

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) PAYLOAD RETENTION DEVICE
- 3) HOOK LATCH
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/1R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: PAYLOAD BAY  
PART NUMBER: 10163-10063-03

CAUSES: CONTAMINATION, PIECE-PART FAILURE

EFFECTS/RATIONALE:

HOOK LATCH FAILING TO OPEN WILL MEAN LOSS OF TOOL FUNCTION. TWO DEVICES ARE FLOWN ON EACH FLIGHT PLUS RMS/PAYLOAD JETTISON CAPABILITY STILL EXISTS. LOSS OF ALL REDUNDANCY, HOWEVER, CAN MEAN LOSS OF CREW AND VEHICLE.

REFERENCES: JSC-20466, 10163-10063

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 11/22/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 13808 ABORT: /NA

ITEM: SNATCH BLOCK ASSEMBLY HOOK LATCH  
FAILURE MODE: FAILS TO CLOSE, JAMS OPEN

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) SNATCH BLOCK ASSEMBLY
- 3) HOOK LATCH
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/3	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: PAYLOAD BAY  
PART NUMBER: SED33102357

CAUSES: CONTAMINATION, MISHANDLING/ABUSE, PIECE-PART FAILURE

EFFECTS/RATIONALE:

THE HOOK LATCH FAILING OPEN WILL HAVE NO EFFECT ON CREW OPERATIONS OR SAFETY. HOOK CAN BE MANUALLY CLOSED OR SECURED WITH TAPE.

REFERENCES: JSC-20466, SED33012357

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 11/19/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 13809 ABORT: /NA

ITEM: SNATCH BLOCK ASSEMBLY HOOK LATCH  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) SNATCH BLOCK ASSEMBLY
- 3) HOOK LATCH
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/3	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: PAYLOAD BAY  
PART NUMBER: SED33102357

CAUSES: CONTAMINATION, MISHANDLING/ABUSE

EFFECTS/RATIONALE:

HOOK LATCH JAMS OPEN AND THE CREW IS UNABLE TO SECURE THE TOOL.  
TAPE OR OTHER MEANS OF SECURING THE TOOL ARE STILL AVAILABLE OR  
THE CREW CAN MANUALLY CLOSE THE HOOK.

REFERENCES: JSC-20466, SED33012357

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/02/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 15182 ABORT: /

ITEM: MANUAL SHUT OFF VALVE (MV3)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: B. RICHARD SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) WATER SUPPLY
- 4) MANUAL SHUT OFF VALVE (MV3)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/	RTLS:	/
LIFTOFF:	/	TAL:	/
ONORBIT:	3/3	AOA:	/
DEORBIT:	/	ATO:	/
LANDING/SAFING:	/		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: GALLEY  
PART NUMBER: MV3

CAUSES: CONTAMINATION, PIECE-PART FAILURE

EFFECTS/RATIONALE:

THIS VALVE SUPPLIES AMBIENT WATER TO THE HOT WATER LOOP OF THE GALLEY. IF IT FAILS CLOSED, THERE WILL BE NO HOT WATER FOR REHYDRATION.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/02/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 15183 ABORT: /

ITEM: MANUAL SHUT OFF VALVE (MV3)  
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: B. RICHARD SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) WATER SUPPLY
- 4) MANUAL SHUT OFF VALVE (MV3)
- 5) SEAL FAILURE
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/	RTLS:	/
LIFTOFF:	/	TAL:	/
ONORBIT:	3/2R	AOA:	/
DEORBIT:	/	ATO:	/
LANDING/SAFING:	/		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: GALLEY  
PART NUMBER: MV3

CAUSES: PIECE-PART FAILURE

EFFECTS/RATIONALE:

FAILURE OF THE SEAL WILL RESULT IN FREE WATER IN THE CABIN WHICH CAN BE A HAZARD TO OTHER SYSTEMS. THIS FAILURE WOULD HAVE LITTLE EFFECT ON THE OPERATION OF THE GALLEY AND COULD BE CONTROLLED IF DETECTED BY A CREWMAN.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/02/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 15184 ABORT: /

ITEM: HOT WATER TANK O-RING  
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: B. RICHARD SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) HOT WATER SYSTEM
- 4) HOT WATER TANK
- 5) O-RING
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC	
PRELAUNCH:	/	RTLS:	/	
LIFTOFF:	/	TAL:	/	
ONORBIT:	3/2R	AOA:	/	
DEORBIT:	/	ATO:	/	
LANDING/SAFING:	/			

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: GALLEY  
PART NUMBER:

CAUSES: PIECE-PART FAILURE

EFFECTS/RATIONALE:

FAILURE OF THE O-RING WOULD RESULT IN A SMALL AMOUNT OF FREE WATER IN THE CABIN WHICH COULD POSE A HAZARD TO OTHER SYSTEMS. IF CREWMEN CANNOT CONTROL THE LEAK, THE HOT WATER WOULD HAVE TO BE SHUT DOWN AND WOULD NOT BE AVAILABLE FOR THE REST OF THE MISSION.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/02/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 15185 ABORT: /

ITEM: RECIRCULATION PUMP (P1) SEAL  
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: B. RICHARD SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) HOT WATER SYSTEM
- 4) RECIRCULATION PUMP (P1)
- 5) SEAL
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC	
PRELAUNCH:	/	RTLS:	/	
LIFTOFF:	/	TAL:	/	
ONORBIT:	3/2R	AOA:	/	
DEORBIT:	/	ATO:	/	
LANDING/SAFING:	/			

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: GALLEY  
PART NUMBER: P1

CAUSES: PIECE-PART FAILURE

EFFECTS/RATIONALE:

FAILURE OF THE SEAL COULD RESULT IN FREE WATER IN THE CABIN WHICH COULD POSE A HAZARD TO OTHER SYSTEMS. IF THE LEAK CANNOT BE CONTROLLED, THE HOT WATER WILL HAVE TO BE SHUT DOWN AND WOULD NOT BE AVAILABLE FOR THE REST OF THE MISSION.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/02/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 15186 ABORT: /

ITEM: REHYDRATION PUMP (P2)  
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: B. RICHARD SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) REHYDRATION STATION PUMP
- 4) SEAL
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	/	RTLS:	/
LIFTOFF:	/	TAL:	/
ONORBIT:	3/2R	AOA:	/
DEORBIT:	/	ATO:	/
LANDING/SAFING:	/		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: GALLEY  
PART NUMBER: P2

CAUSES: PIECE-PART FAILURE

EFFECTS/RATIONALE:

FAILURE OF THE SEAL WILL RESULT IN FREE WATER IN THE CABIN WHICH COULD POSE A HAZARD TO OTHER SYSTEMS. CREWMEN SHOULD BE ABLE TO CONTROL THE LEAK IF IT CAN BE DETECTED.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/02/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 15187 ABORT: /

ITEM: COLD WATER RECIRCULATION VALVE (SV1)  
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: B. RICHARD SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) RHS WATER SUPPLY
- 4) SOLENOID VALVE
- 5) SEAL
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/	RTLS:	/
LIFTOFF:	/	TAL:	/
ONORBIT:	3/2R	AOA:	/
DEORBIT:	/	ATO:	/
LANDING/SAFING:	/		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: GALLEY  
PART NUMBER: SV1

CAUSES: PIECE-PART FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WILL RESULT IN FREE WATER IN THE CABIN WHICH CAN POSE A HAZARD TO OTHER SYSTEMS. CREWMEN SHOULD BE ABLE TO CONTROL THE LEAK IF IT CAN BE DETECTED.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/02/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 15188 ABORT: /

ITEM: RHS COLD WATER RECIRCULATION VALVE (SV2)  
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: B. RICHARD SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) WATER SUPPLY
- 4) BYPASS SOLENOID VALVE
- 5) SEAL
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	HDW/FUNC	CRITICALITIES ABORT	HDW/FUNC
PRELAUNCH:	/	RTLS:	/
LIFTOFF:	/	TAL:	/
ONORBIT:	3/2R	AOA:	/
DEORBIT:	/	ATO:	/
LANDING/SAFING:	/		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: GALLEY  
PART NUMBER: SV2

CAUSES: PIECE-PART FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WILL RESULT IN FREE WATER IN THE CABIN WHICH CAN POSE A HAZARD TO OTHER SYSTEMS. THE CREW SHOULD BE ABLE TO CONTROL THE LEAK IF IT CAN BE DETECTED.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/02/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 15189 ABORT: /

ITEM: RHS OUTLET SOLENOID VALVE (SV3)  
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: B. RICHARD SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) RHS WATER SUPPLY
- 4) OUTLET SOLENOID VALVE
- 5) SEAL
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/	RTLS:	/
LIFTOFF:	/	TAL:	/
ONORBIT:	3/2R	AOA:	/
DEORBIT:	/	ATO:	/
LANDING/SAFING:	/		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: GALLEY  
PART NUMBER: SV3

CAUSES: PIECE-PART FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WILL RESULT IN FREE WATER IN THE CABIN WHICH CAN POSE A HAZARD TO OTHER SYSTEMS. THE CREW SHOULD BE ABLE TO CONTROL THE LEAK IF IT CAN BE DETECTED.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/02/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 15190 ABORT: /

ITEM: RHS CHILLED WATER FEED SOLENOID VALVE (SV4)  
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: B. RICHARD SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) RHS WATER SUPPLY SYSTEM
- 4) CHILLED WATER FEED SOLENOID VALVE
- 5) SEAL
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT		HDW/FUNC
PRELAUNCH:	/	RTLS:		/
LIFTOFF:	/	TAL:		/
ONORBIT:	3/2R	AOA:		/
DEORBIT:	/	ATO:		/
LANDING/SAFING:	/			

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: GALLEY  
PART NUMBER: SV4

CAUSES: PIECE-PART FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WILL RESULT IN FREE WATER IN THE CABIN WHICH CAN POSE A HAZARD TO OTHER SYSTEMS. THE CREW SHOULD BE ABLE TO CONTROL THE LEAK IF IT CAN BE DETECTED.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87  
SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15191

HIGHEST CRITICALITY HDW/FUNC  
FLIGHT: 3/3  
ABORT: /

ITEM: CHECK VALVE  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: B. RICHARD

SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) WATER SUPPLY
- 4) CHECK VALVE
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/	RTLS:	/
LIFTOFF:	/	TAL:	/
ONORBIT:	3/3	AOA:	/
DEORBIT:	/	ATO:	/
LANDING/SAFING:	/		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: GALLEY  
PART NUMBER:

CAUSES: CONTAMINATION, PIECE-PART FAILURE

EFFECTS/RATIONALE:

THE CHECK VALVE ALLOWS A FLOW OF HOT WATER THROUGH MV2 TO THE AUXILIARY PORT. THIS FAILURE WOULD HAVE VERY LITTLE EFFECT ON THE OPERATION OF THE GALLEY AND COULD EVEN GO UNNOTICED.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87  
SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15192

HIGHEST CRITICALITY HDW/FUNC  
FLIGHT: 3/3  
ABORT: /

ITEM: CHECK VALVE  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: B. RICHARD

SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) WATER SUPPLY
- 4) CHECK VALVE
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	/	RTLS:	/
LIFTOFF:	/	TAL:	/
ONORBIT:	3/3	AOA:	/
DEORBIT:	/	ATO:	/
LANDING/SAFING:	/		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: GALLEY  
PART NUMBER:

CAUSES: CONTAMINATION, PIECE-PART FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WOULD PREVENT HOT WATER FROM BEING AVAILABLE TO THE AUXILIARY PORT BUT WOULD HAVE NO ADVERSE EFFECT ON THE NORMAL OPERATION OF THE GALLEY.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 15193 ABORT: /

ITEM: CHECK VALVE SEAL  
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: B. RICHARD SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) WATER SUPPLY
- 4) CHECK VALVE
- 5) SEAL
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	/	RTLS:	/
LIFTOFF:	/	TAL:	/
ONORBIT:	3/2R	AOA:	/
DEORBIT:	/	ATO:	/
LANDING/SAFING:	/		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: GALLEY  
PART NUMBER:

CAUSES: PIECE-PART FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WOULD RESULT IN FREE WATER IN THE CABIN WHICH COULD BE A HAZARD TO OTHER SYSTEMS. THE CREW SHOULD BE ABLE TO CONTROL THE LEAK IF IT CAN BE DETECTED.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 15194 ABORT: /

ITEM: MIXING VALVE (MV2)  
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: B. RICHARD SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) WATER SUPPLY
- 4) MIXING VALVE (MV2)
- 5) SEAL
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/	RTLS:	/
LIFTOFF:	/	TAL:	/
ONORBIT:	3/2R	AOA:	/
DEORBIT:	/	ATO:	/
LANDING/SAFING:	/		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: GALLEY  
PART NUMBER: MV2

CAUSES: PIECE-PART FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WILL RESULT IN FREE WATER IN THE CABIN WHICH MAY POSE A HAZARD TO OTHER SYSTEMS. THE CREW SHOULD BE ABLE TO CONTROL THE LEAK IF IT CAN BE DETECTED.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87  
SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15195

HIGHEST CRITICALITY HDW/FUNC  
FLIGHT: 3/3  
ABORT: /

ITEM: MICROBIAL CHECK VALVE  
FAILURE MODE: RESTRICTED FLOW

LEAD ANALYST: B. RICHARD

SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) WATER SUPPLY
- 4) MICROBIAL CHECK VALVE
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/	RTLS:	/
LIFTOFF:	/	TAL:	/
ONORBIT:	3/3	AOA:	/
DEORBIT:	/	ATO:	/
LANDING/SAFING:	/		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: GALLEY  
PART NUMBER:

CAUSES: CONTAMINATION

EFFECTS/RATIONALE:

THE WORST CASE RESTRICTION WILL PREVENT USING THE AUXILIARY PORT.  
THE NORMAL OPERATION OF THE GALLEY WILL NOT BE AFFECTED BY THIS  
FAILURE.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 15196 ABORT: /

ITEM: MICROBIAL CHECK VALVE SEAL  
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: B. RICHARD SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) WATER SUPPLY
- 4) MICROBIAL CHECK VALVE
- 5) SEAL
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/	RTLS:	/
LIFTOFF:	/	TAL:	/
ONORBIT:	3/2R	AOA:	/
DEORBIT:	/	ATO:	/
LANDING/SAFING:	/		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: GALLEY  
PART NUMBER:

CAUSES: PIECE-PART FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WILL RESULT IN FREE WATER IN THE CABIN WHICH MAY POSE A HAZARD TO OTHER SYSTEMS. THE CREW SHOULD BE ABLE TO CONTROL THE LEAK IF IT CAN BE DETECTED.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 15197 ABORT: /

ITEM: LINES AND FITTINGS (SEALS)  
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: B. RICHARD SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) WATER SUPPLY
- 4) LINES AND FITTINGS
- 5) SEALS
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/	RTLS:	/
LIFTOFF:	/	TAL:	/
ONORBIT:	3/2R	AOA:	/
DEORBIT:	/	ATO:	/
LANDING/SAFING:	/		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: GALLEY  
PART NUMBER:

CAUSES: PIECE-PART FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WILL RESULT IN FREE WATER IN THE CABIN WHICH MAY POSE A HAZARD TO OTHER SYSTEMS. THE CREW SHOULD BE ABLE TO CONTROL THE LEAK IF IT CAN BE DETECTED.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 15198 ABORT: /

ITEM: LINES AND FITTINGS (SEALS)  
FAILURE MODE: RESTRICTED FLOW

LEAD ANALYST: B. RICHARD SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) WATER SUPPLY
- 4) LINES AND FITTINGS
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	/	RTLS:	/
LIFTOFF:	/	TAL:	/
ONORBIT:	3/3	AOA:	/
DEORBIT:	/	ATO:	/
LANDING/SAFING:	/		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: GALLEY  
PART NUMBER:

CAUSES: CONTAMINATION

EFFECTS/RATIONALE:

THE WORST CASE RESTRICTION WOULD PREVENT USE OF THE GALLEY -  
OTHER SOURCES OF WATER WOULD HAVE TO BE USED.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87  
SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15199

HIGHEST CRITICALITY HDW/FUNC  
FLIGHT: 3/2R  
ABORT: /

ITEM: RHS NEEDLE SEAL  
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: B. RICHARD

SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) WATER SUPPLY
- 4) RHS NEEDLE
- 5) SEAL
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	/	RTLS:	/
LIFTOFF:	/	TAL:	/
ONORBIT:	3/2R	AOA:	/
DEORBIT:	/	ATO:	/
LANDING/SAFING:	/		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: GALLEY  
PART NUMBER:

CAUSES: CONTAMINATION

EFFECTS/RATIONALE:

THE FAILURE WILL RESULT IN FREE WATER IN THE CABIN WHICH MAY POSE A HAZARD TO OTHER SYSTEMS. THE CREW SHOULD BE ABLE TO CONTROL THE LEAK.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87  
SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15200

HIGHEST CRITICALITY HDW/FUNC  
FLIGHT: 3/2R  
ABORT: /

ITEM: TEMP GAGE SEAL  
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: B. RICHARD

SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) WATER SUPPLY
- 4) TEMP GAGE
- 5) SEAL
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT		HDW/FUNC
PRELAUNCH:	/	RTLS:		/
LIFTOFF:	/	TAL:		/
ONORBIT:	3/2R	AOA:		/
DEORBIT:	/	ATO:		/
LANDING/SAFING:	/			

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: GALLEY  
PART NUMBER:

CAUSES: PIECE-PART FAILURE

EFFECTS/RATIONALE:

THE FAILURE WILL RESULT IN FREE WATER IN THE CABIN WHICH MAY POSE A HAZARD TO OTHER SYSTEMS. THE CREW SHOULD BE ABLE TO CONTROL THIS LEAK IF IT CAN BE DETECTED.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 15203 ABORT: /

ITEM: RTD SEAL  
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: B. RICHARD SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) WATER SUPPLY
- 4) RTD
- 5) SEAL
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/	RTLS:	/
LIFTOFF:	/	TAL:	/
ONORBIT:	3/2R	AOA:	/
DEORBIT:	/	ATO:	/
LANDING/SAFING:	/		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: GALLEY  
PART NUMBER:

CAUSES: PIECE-PART FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WILL RESULT IN FREE WATER IN THE CABIN WHICH MAY POSE A HAZARD TO OTHER SYSTEMS. THE CREW SHOULD BE ABLE TO CONTROL THE LEAK IF IT CAN BE DETECTED.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87  
SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15204

HIGHEST CRITICALITY HDW/FUNC  
FLIGHT: 3/3  
ABORT: /

ITEM: WATER HEATER SW (S2)  
FAILURE MODE: SHORTED

LEAD ANALYST: B. RICHARD

SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) ELECTRICAL
- 4) WATER HEATER SWITCH
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/	RTLS:	/
LIFTOFF:	/	TAL:	/
ONORBIT:	3/3	AOA:	/
DEORBIT:	/	ATO:	/
LANDING/SAFING:	/		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: GALLEY  
PART NUMBER: S2

CAUSES: CONTAMINATION, PIECE-PART FAILURE

EFFECTS/RATIONALE:  
SHORT TO CASE WILL CAUSE CIRCUIT BREAKER TO TRIP.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 15205 ABORT: /

ITEM: OVEN HEATER SWITCH (S1)  
FAILURE MODE: SHORTED

LEAD ANALYST: B. RICHARD SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) ELECTRICAL
- 4) OVEN HEATER SW (S1)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/	RTLS:	/
LIFTOFF:	/	TAL:	/
ONORBIT:	3/3	AOA:	/
DEORBIT:	/	ATO:	/
LANDING/SAFING:	/		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: GALLEY  
PART NUMBER: S1

CAUSES: CONTAMINATION, PIECE-PART FAILURE

EFFECTS/RATIONALE:  
SHORT TO CASE WILL CAUSE CIRCUIT BREAKER TO TRIP.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 15206 ABORT: /

ITEM: OVEN BLOWER SWITCH (S3)  
FAILURE MODE: SHORTED

LEAD ANALYST: B. RICHARD SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) ELECTRICAL
- 4) OVEN BLOWER SWITCH
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/	RTLS:	/
LIFTOFF:	/	TAL:	/
ONORBIT:	3/3	AOA:	/
DEORBIT:	/	ATO:	/
LANDING/SAFING:	/		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: GALLEY  
PART NUMBER: S3

CAUSES: CONTAMINATION, PIECE-PART FAILURE

EFFECTS/RATIONALE:  
SHORT TO CASE WILL CAUSE CIRCUIT BREAKER TO TRIP.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 15207 ABORT: /

ITEM: WATER HEATER STRIP HEATER (HR1-HR6)  
FAILURE MODE: SHORTED

LEAD ANALYST: B. RICHARD SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) ELECTRICAL
- 4) WATER HEATER STRIP HEATER
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	HDW/FUNC	CRITICALITIES	ABORT	HDW/FUNC
PRELAUNCH:	/		RTLS:	/
LIFTOFF:	/		TAL:	/
ONORBIT:	3/3		AOA:	/
DEORBIT:	/		ATO:	/
LANDING/SAFING:	/			

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: GALLEY  
PART NUMBER: HR1-HR6

CAUSES: CONTAMINATION, PIECE-PART FAILURE

EFFECTS/RATIONALE:  
SHORT TO CASE WILL CAUSE CIRCUIT BREAKER TO TRIP.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 15208 ABORT: /

ITEM: WATER HEATER STRIP HEATER THERMOSTAT S1-S12  
FAILURE MODE: SHORTED

LEAD ANALYST: B. RICHARD SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) ELECTRICAL
- 4) WATER HEATER STRIP HEATER THERMOSTAT
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/	RTLS:	/
LIFTOFF:	/	TAL:	/
ONORBIT:	3/3	AOA:	/
DEORBIT:	/	ATO:	/
LANDING/SAFING:	/		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: GALLEY  
PART NUMBER: S1-S12

CAUSES: CONTAMINATION, PIECE-PART FAILURE

EFFECTS/RATIONALE:  
SHORT TO CASE WILL TRIP THE CIRCUIT BREAKER.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 15209 ABORT: /

ITEM: OVEN STRIP HEATERS (HR1-HR4)  
FAILURE MODE: SHORTED

LEAD ANALYST: B. RICHARD SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) ELECTRICAL
- 4) OVEN STRIP HEATERS
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	HDW/FUNC	CRITICALITIES	ABORT	HDW/FUNC
PRELAUNCH:	/		RTLS:	/
LIFTOFF:	/		TAL:	/
ONORBIT:	3/3		AOA:	/
DEORBIT:	/		ATO:	/
LANDING/SAFING:	/			

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: GALLEY  
PART NUMBER: HR1-HR4

CAUSES: CONTAMINATION, PIECE-PART FAILURE

EFFECTS/RATIONALE:  
SHORT TO CASE WILL CAUSE CIRCUIT BREAKER TO TRIP.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 15210 ABORT: /

ITEM: OVEN HEATER THERMOSTATS (S1-S8)  
FAILURE MODE: SHORTED

LEAD ANALYST: B. RICHARD SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) ELECTRICAL
- 4) OVEN HEATER THERMOSTATS
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	/	RTLS:	/
LIFTOFF:	/	TAL:	/
ONORBIT:	3/3	AOA:	/
DEORBIT:	/	ATO:	/
LANDING/SAFING:	/		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: GALLEY  
PART NUMBER: S1-S8

CAUSES: CONTAMINATION, PIECE-PART FAILURE

EFFECTS/RATIONALE:  
SHORT TO CASE WILL CAUSE CIRCUIT BREAKER TO TRIP.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 15211 ABORT: /

ITEM: HOT WATER THERMOSTAT (S13)  
FAILURE MODE: SHORTED

LEAD ANALYST: B. RICHARD SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) ELECTRICAL
- 4) HOT WATER THERMOSTAT
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/	RTLS:	/
LIFTOFF:	/	TAL:	/
ONORBIT:	3/3	AOA:	/
DEORBIT:	/	ATO:	/
LANDING/SAFING:	/		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: GALLEY  
PART NUMBER: S13

CAUSES: CONTAMINATION, PIECE-PART FAILURE

EFFECTS/RATIONALE:  
SHORT TO CASE WILL CAUSE CIRCUIT BREAKER TO TRIP.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87  
SUBSYSTEM: CREW EQUIPMENT  
MDAC ID: 15212

HIGHEST CRITICALITY HDW/FUNC  
FLIGHT: 3/3  
ABORT: /

ITEM: WIRE HARNESS  
FAILURE MODE: SHORTED

LEAD ANALYST: B. RICHARD

SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) GALLEY
- 3) ELECTRICAL
- 4) WIRE HARNESS
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	HDW/FUNC	CRITICALITIES	ABORT	HDW/FUNC
PRELAUNCH:	/		RTLS:	/
LIFTOFF:	/		TAL:	/
ONORBIT:	3/3		AOA:	/
DEORBIT:	/		ATO:	/
LANDING/SAFING:	/			

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: GALLEY  
PART NUMBER:

CAUSES: MECHANICAL SHOCK, PIECE-PART FAILURE

EFFECTS/RATIONALE:

WORST CASE FAILURE COULD RESULT IN LOSS OF GALLEY. ALTERNATE  
SOURCE OF WATER WOULD HAVE TO BE USED FOR COMPLETION OF MISSION.

REFERENCES: JSC 12770, SSSH 6.6, GALLEY UPGRADE MODIFICATIONS



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/02/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 15325 ABORT: /NA

ITEM: OWDA SLIDE ASSEMBLY  
FAILURE MODE: STUCK IN UP OR DOWN POSITION

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) OWDA
- 3) SLIDE ASSEMBLY
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	HDW/FUNC	CRITICALITIES	ABORT	HDW/FUNC
PRELAUNCH:	/NA		RTLS:	/NA
LIFTOFF:	/NA		TAL:	/NA
ONORBIT:	3/2R		AOA:	/NA
DEORBIT:	/NA		ATO:	/NA
LANDING/SAFING:	/NA			

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: CREW MODULE  
PART NUMBER: SED 48101600

CAUSES: CONTAMINATION, MISHANDLING/ABUSE

EFFECTS/RATIONALE:  
SLIDE ASSEMBLY IS STUCK IN UP OR DOWN POSITION. CREW IS UNABLE TO DISPENSE WATER WITH THE OWDA. IF CWDA SUBSEQUENTLY FAILS, MISSION SHOULD BE TERMINATED.

REFERENCES: JSC-12770, SFOM VOL 12, JSC-20365, SED48101600

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/02/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 15326 ABORT: /NA

ITEM: OWDA SLIDE ASSEMBLY  
FAILURE MODE: STRUCTURAL FAILURE

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) OPERATIONAL WATER DISPENSER
- 3) SLIDE ASSEMBLY
- 4) HANDLE
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/3	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: CREW MODULE  
PART NUMBER: SED48101600

CAUSES: OVERLOAD, PIECE-PART FAILURE

EFFECTS/RATIONALE:

HANDLE BREAKS BUT SLIDE ASSEMBLY STILL ACCESSIBLE AND OWDA IS STILL USABLE.

REFERENCES: JSC-12770, SFOM VOL 12, JSC-20365, SED48101600

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/02/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 15327 ABORT: /NA

ITEM: REHYDRATION NEEDLE  
FAILURE MODE: NO FLOW

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) OPERATIONAL WATER DISPENSER
- 3) NEEDLE
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: CREW MODULE  
PART NUMBER: SED48101600

CAUSES: CONTAMINATION, STRUCTURAL FAILURE

EFFECTS/RATIONALE:

CONTAMINATION OR BENDING PREVENTS WATER FLOW THROUGH REHYDRATION NEEDLE. IF SPARE NEEDLE AND CONTINGENCY WATER DISPENSER SUBSEQUENTLY FAIL, THEN MISSION SHOULD BE TERMINATED.

REFERENCES: JSC-12770, SFOM VOL 15, JSC-20365, SED48101600

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/02/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 15328 ABORT: /NA

ITEM: O-RING  
FAILURE MODE: INTERNAL/EXTERNAL LEAKAGE

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) OPERATIONAL WATER DISPENSER
- 3) SLIDE ASSEMBLY
- 4) O-RING
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/3	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: CREW MODULE  
PART NUMBER: SED48101600

CAUSES: CONTAMINATION, DEFECTIVE MATERIAL

EFFECTS/RATIONALE:

LEAKAGE FROM THE O-RING MAY RESULT IN A SMALL AMOUNT OF WATER BEING FREE IN THE CABIN. THE WATER CAN BE CONTAINED BY THE CREW WITH NO RESULTING DAMAGE OR SAFETY IMPLICATIONS.

REFERENCES: JSC-12770, SFOM VOL 12, JSC-20365, SED48101600

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/02/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 15329 ABORT: /NA

ITEM: SOLENOID VALVE - OWDA  
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) OPERATIONAL WATER DISPENSER
- 3) SOLENOID VALVE
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: CREW MODULE  
PART NUMBER: SED48101600

CAUSES: SEAL DAMAGE

EFFECTS/RATIONALE:

DAMAGE TO THE SOLENOID VALVE SEAL MAY ALLOW A SMALL AMOUNT OF WATER TO LEAK INTO THE CREW MODULE. IF SMALL ENOUGH, THE LEAK CAN BE CONTAINED BY THE CREW AND THE OWDA WILL REMAIN OPERATIONAL. HOWEVER, A LARGE LEAK WILL CAUSE THE SOLENOID VALVE AND OWDA TO BE CONSIDERED BROKEN.

REFERENCES: JSC-12770, SFOM VOL 12, JSC-20365, SED48101600

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/02/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 15330 ABORT: /NA

ITEM: OPERATIONAL WATER DISPENSER PRESSURE REGULATOR  
FAILURE MODE: REGULATES HIGH

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) OPERATIONAL WATER DISPENSER
- 3) PRESSURE REGULATOR
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	HDW/FUNC	CRITICALITIES	ABORT	HDW/FUNC
PRELAUNCH:	/NA		RTLS:	/NA
LIFTOFF:	/NA		TAL:	/NA
ONORBIT:	3/3		AOA:	/NA
DEORBIT:	/NA		ATO:	/NA
LANDING/SAFING:	/NA			

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: CREW MODULE  
PART NUMBER: SED48101600

CAUSES: CONTAMINATION, SPRING BREAKS, MECHANISM JAMS

EFFECTS/RATIONALE:  
WATER PRESSURE AND DELIVERED FLOW RATE ARE INCREASED. CREW CAN  
USE A LOWER VOLUME SETTING OR THE BYPASS VALVE TO CONTINUE  
OPERATION OF THE OWDA.

REFERENCES: JSC-12770, SFOM VOL 12, JSC-20365, SED48101600

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/02/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 15331 ABORT: 3/2R

ITEM: BYPASS VALVE  
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) OPERATIONAL WATER DISPENSER
- 3) BYPASS VALVE
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: CREW MODULE  
PART NUMBER: SED48101600

CAUSES: SEAL DAMAGE

EFFECTS/RATIONALE:

DAMAGE TO THE BYPASS VALVE SEAL WILL CAUSE A LEAK INTO THE CREW MODULE. IF THE LEAK IS SMALL ENOUGH THE WATER CAN BE CONTAINED BY THE CREW AND THE OWDA WILL REMAIN OPERATIONAL. HOWEVER, IN THE WORST CASE, THE LEAKAGE WILL CAUSE A REDUCTION IN THE WATER DELIVERED TO THE CREW AND NON-OPERATION OF THE OWDA. LOSS OF ALL WATER DELIVERY REDUNDANCY WILL RESULT IN MISSION TERMINATION.

REFERENCES: JSC-12770, SFOM VOL 12, JSC-20365, SED48101600

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 15332 ABORT: /NA

ITEM: OWDA WATER SELECTION VALVE  
FAILURE MODE: INTERNAL/LEAKAGE VALVE

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) OPERATIONAL WATER DISPENSER
- 3) WATER SELECTION VALVE
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	HDW/FUNC	CRITICALITIES	ABORT	HDW/FUNC
PRELAUNCH:	/NA		RTLS:	/NA
LIFTOFF:	/NA		TAL:	/NA
ONORBIT:	3/2R		AOA:	/NA
DEORBIT:	/NA		ATO:	/NA
LANDING/SAFING:	/NA			

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: CREW MODULE  
PART NUMBER: SED48101600

CAUSES: SEAL DAMAGE

EFFECTS/RATIONALE:

DAMAGE TO WATER SELECTION VALVE SEAL MAY ALLOW WATER TO LEAK INTO THE CREW MODULE. IF THE LEAK IS SMALL, THE WATER CAN BE CONTAINED BY THE CREW AND THE OWDA WILL REMAIN OPERATIONAL. HOWEVER, A WORST CASE LEAK WILL RESULT IN INSUFFICIENT WATER REACHING THE REHYDRATION NEEDLE AND AN INOPERABLE OWDA. IN THIS CASE, LOSS OF ALL REDUNDANCY WILL RESULT IN MISSION TERMINATION.

REFERENCES: JSC-12770, SFOM VOL 12, JSC-20365, SED48101600



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 15333 ABORT: /NA

ITEM: HOSE ASSEMBLY  
FAILURE MODE: INTERNAL/EXTERNAL LEAKAGE

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) OPERATIONAL WATER DISPENSER
- 3) HOSE ASSEMBLY
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: CREW MODULE  
PART NUMBER: SED48101600

CAUSES: MECHANICAL SHOCK, VIBRATION, DEFECTIVE MATERIAL

EFFECTS/RATIONALE:

A LEAK IN THE LINE GOING FROM THE ORBITER WATER SUPPLY TO THE  
OWDA WILL RESULT IN WATER IN THE CABIN AND AN INOPERABLE OWDA.  
SUBSEQUENT FAILURES IN THE WATER DELIVERY SYSTEM WILL RESULT IN  
MISSION TERMINATION.

REFERENCES: JSC-12770, SFOM VOL 12, JSC-20365, SED48101600

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 15334 ABORT: /NA

ITEM: OWDA - ROTARY SWITCH  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) OPERATIONAL WATER DISPENSER
- 3) ROTARY SWITCH
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/3	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: CREW MODULE  
PART NUMBER: SED48101600

CAUSES: CONTAMINATION, MECHANICAL SHOCK, VIBRATION

EFFECTS/RATIONALE:

THE OWDA ROTARY SWITCH FAILS TO A GIVEN POSITION WHICH WILL PERMIT ONLY ONE QUANTITY OF WATER TO BE DELIVERED. THE OWDA IS STILL OPERATIONAL BY USING THE BYPASS VALVE.

REFERENCES: JSC-12770, SFOM VOL 12, JSC-20365, SED48101600

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 15335 ABORT: /NA

ITEM: OWDA - ON/OFF SWITCH  
FAILURE MODE: LOSS OF OUTPUT

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) OPERATIONAL WATER DISPENSER
- 3) ON/OFF SWITCH
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: CREW MODULE  
PART NUMBER: SED48101600

CAUSES: CONTAMINATION, MECHANICAL SHOCK, VIBRATION

EFFECTS/RATIONALE:

LOSS OF OUTPUT FROM THE ON/OFF SWITCH MEANS THE OWDA CANNOT BE OPERATED IN ITS NOMINAL MODE. THE BYPASS VALVE AND THE CONTINGENCY WATER DISPENSER ARE STILL AVAILABLE. HOWEVER, THE MISSION MUST BE TERMINATED FOR LOSS OF ALL WATER DELIVERY REDUNDANCY.

REFERENCES: JSC-12770, SFOM VOL 12, JSC-20365, SED48101600

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 15336 ABORT: /NA

ITEM: OWDA - ON/OFF SWITCH  
FAILURE MODE: FAILS ON

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) OPERATIONAL WATER DISPENSER
- 3) ON/OFF SWITCH
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/3	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: CREW MODULE  
PART NUMBER: SED48101600

CAUSES: CONTAMINATION, VIBRATION

EFFECTS/RATIONALE:

THE ON/OFF SWITCH FAILS ON WHICH RESULTS IN THE OWDA BEING CONTINUOUS POWERED. THIS CAN CAUSE INADVERTENT ACTIVATION BUT NO SAFETY CONCERNS.

REFERENCES: JSC-12770, SFOM VOL 12, JSC-20365, SED48101600

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 15337 ABORT: /NA

ITEM: OWDA - FILL SWITCH  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) OPERATIONAL WATER DISPENSER
- 3) FILL SWITCH
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: CREW MODULE  
PART NUMBER: SED48101600

CAUSES: CONTAMINATION, MECHANICAL SHOCK, VIBRATION

EFFECTS/RATIONALE:

IF THE OWDA FILL SWITCH FAILS OPEN, THE "AUTOMATIC" FEATURE OF THE REHYDRATION CYCLE WILL NOT OPERATE. THE BYPASS VALVE AND THE CONTINGENCY WATER VALVE ARE STILL AVAILABLE. MISSION TERMINATION WILL BE REQUIRED IF ALL WATER DELIVERY REDUNDANCY IS LOST.

REFERENCES: JSC-12770, SFOM VOL 12, JSC-20365, SED48101600

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 15338 ABORT: /NA

ITEM: OWDA - FILL SWITCH  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) OPERATIONAL WATER DISPENSER
- 3) FILL SWITCH
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC	
PRELAUNCH:	/NA	RTLS:	/NA	
LIFTOFF:	/NA	TAL:	/NA	
ONORBIT:	3/2R	AOA:	/NA	
DEORBIT:	/NA	ATO:	/NA	
LANDING/SAFING:	/NA			

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: CREW MODULE  
PART NUMBER: SED48101600

CAUSES: CONTAMINATION, MECHANICAL SHOCK

EFFECTS/RATIONALE:

THE OWDA FILL SWITCH FAILING CLOSED WILL RESULT IN NO WATER FLOW AFTER THE INITIAL WATER PULSE WHICH OCCURRED WHEN THE BUTTON FAILED. THE BYPASS VALVE AND THE CONTINGENCY WATER DISPENSER ARE STILL AVAILABLE.

REFERENCES: JSC-12770, SFOM VOL 12, JSC-20365, SED48101600

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/04/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/2R  
MDAC ID: 15403 ABORT: /NA

ITEM: CWDA - CONNECTION TO ORBITER  
FAILURE MODE: UNABLE TO MAKE CONNECTION

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) CONTINGENCY WATER DISPENSER
- 3) CONNECTION TO ORBITER
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	HDW/FUNC	CRITICALITIES ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: CREW MODULE  
PART NUMBER: SED48101607

CAUSES: CONTAMINATION

EFFECTS/RATIONALE:

UNABLE TO CONNECT CWDA TO ORBITER WATER SUPPLY. THIS MEANS THE CWDA WILL NOT PROVIDE WATER TO THE CREW. IF ALL REDUNDANT METHODS OF WATER DELIVERY ARE LOST, MISSION TERMINATION WILL BE REQUIRED.

REFERENCES: JSC-20365, SED48101607

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/10/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/1R  
MDAC ID: 16409 ABORT: /NA

ITEM: TREADMILL QUICK DISCONNECT  
FAILURE MODE: JAMMED/FAILS TO RELEASE

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) TREADMILL
- 3) QUICK DISCONNECT
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/1R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: CREW MODULE  
PART NUMBER: 10131-10031-02

CAUSES: CONTAMINATION, MISHANDLING/ABUSE

EFFECTS/RATIONALE:

CANNOT REMOVE TREADMILL FROM: (1) LI OH DOOR FOR REINSTALLATION  
OF CREW SEAT; (2) MIDDECK FORWARD FLOOR TO ACCESS LOCKERS WITH  
CRITICAL EQUIPMENT.

REFERENCES: JSC-12770, SFOM VOL 12, 10131-10031



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/10/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 16410 ABORT: /NA

ITEM: TREADMILL MONITOR BATTERIES  
FAILURE MODE: OPEN (ELECTRICAL), DEPLETED POWER

LEAD ANALYST: S.K. SINCLAIR SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) TREADMILL EXERCISER ASSEMBLY
- 3) PHYSIOLOGICAL MONITOR
- 4) BATTERIES
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/3	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: CREW MODULE  
PART NUMBER: 10131-10031

CAUSES: CONTAMINATION, MECHANICAL SHOCK, VIBRATION

EFFECTS/RATIONALE:

THE TREADMILL'S PHYSIOLOGICAL MONITOR WILL BE INOPERATIVE DUE TO LOSS OF BATTERY POWER. TREADMILL WILL STILL FUNCTION WITHOUT MONITOR.

REFERENCES: JSC-12770, SFOM VOL 12, 10131-10031

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/11/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/1R  
MDAC ID: 16512 ABORT: /NA

ITEM: CREWMAN OPTICAL ALIGNMENT SIGHT (COAS) ADJUSTMENT  
MECHANISM  
FAILURE MODE: PHYSICAL BINDING/JAMMING

LEAD ANALYST: H. SAXON SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) COAS
- 3) ADJUSTMENT MECHANISM
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/1R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: CREW MODULE  
PART NUMBER:

CAUSES: MISHANDLING/ABUSE, PIECE-PART FAILURE

EFFECTS/RATIONALE:

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/11/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 16513 ABORT: /NA

ITEM: CREWMAN OPTICAL ALIGNMENT SIGHT (COAS) AFT MOUNT  
ASSEMBLY

FAILURE MODE: SEAT FAILS TO ADJUST UP OR DOWN

LEAD ANALYST: H. SAXON SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) COAS
- 3) AFT MOUNT ASSEMBLY
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/3	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: CREW MODULE  
PART NUMBER:

CAUSES: CONTAMINATION, MISHANDLING/ABUSE, PIECE-PART FAILURE

EFFECTS/RATIONALE:

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/11/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 2/1R  
MDAC ID: 16514 ABORT: /NA

ITEM: CREWMAN OPTICAL ALIGNMENT SIGHT (COAS) AFT MOUNT  
ASSEMBLY  
FAILURE MODE: SEAT FAILS TO ADJUST UP OR DOWN

LEAD ANALYST: H. SAXON SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) COAS
- 3) AFT MOUNT ASSEMBLY
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	2/1R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: CREW MODULE  
PART NUMBER:

CAUSES: CONTAMINATION, MISHANDLING/ABUSE, PIECE-PART FAILURE

EFFECTS/RATIONALE:

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/11/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/3  
MDAC ID: 16515 ABORT: /NA

ITEM: CREWMAN OPTICAL ALIGNMENT SIGHT (COAS) AFT MOUNT  
ASSEMBLY  
FAILURE MODE: SEAT FAILS TO ADJUST BACKWARD AND FORWARD

LEAD ANALYST: H. SAXON SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) COAS
- 3) AFT MOUNT ASSEMBLY
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/3	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: CREW MODULE  
PART NUMBER:

CAUSES: CONTAMINATION, MISHANDLING/ABUSE, PIECE-PART FAILURE

EFFECTS/RATIONALE:

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/11/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 3/1R  
MDAC ID: 16516 ABORT: /NA

ITEM: CREWMAN OPTICAL ALIGNMENT SIGHT (COAS) AFT BRACKET  
ASSEMBLY  
FAILURE MODE: SEAT FAILS TO ADJUST UP OR DOWN

LEAD ANALYST: H. SAXON SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) COAS
- 3) AFT BRACKET ASSEMBLY
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/1R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: CREW MODULE  
PART NUMBER:

CAUSES: CONTAMINATION, MISHANDLING/ABUSE, PIECE-PART FAILURE

EFFECTS/RATIONALE:

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/11/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: CREW EQUIPMENT FLIGHT: 2/1R  
MDAC ID: 16517 ABORT: /NA

ITEM: CREWMAN OPTICAL ALIGNMENT SIGHT (COAS) AFT BRACKET  
ASSEMBLY  
FAILURE MODE: SEAT FAILS TO ADJUST BACKWARD AND FORWARD

LEAD ANALYST: H. SAXON SUBSYS LEAD: S.K. SINCLAIR

BREAKDOWN HIERARCHY:

- 1) CREW EQUIPMENT
- 2) COAS
- 3) AFT BRACKET ASSEMBLY
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	2/1R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: CREW MODULE  
PART NUMBER:

CAUSES: CONTAMINATION, MISHANDLING/ABUSE, PIECE-PART FAILURE

EFFECTS/RATIONALE:

REFERENCES:





## APPENDIX F

### NASA FMEA TO IOA WORKSHEET CROSS REFERENCE/RECOMMENDATIONS

This section provides a cross reference between the NASA FMEA and corresponding IOA analysis worksheet(s) included in Appendix E. The Appendix F identifies: NASA FMEA Number, IOA Assessment Number, NASA criticality and redundancy screen data, and IOA recommendations.

#### Appendix F Legend

##### Code Definition

- 1 IOA recommends deleting the IOA failure mode.

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APPENDIX F

NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *				
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C		
								OTHER (SEE LEGEND CODE)	ISSUE
	CRWEEP-1100	/				/			X
	CRWEEP-1101	/				/			X
	CRWEEP-1102	/				/			X
	CRWEEP-1103	/				/			X
	CRWEEP-1104	/				/			X
	CRWEEP-1302	/				/			X
	CRWEEP-1307	/				/			X
	CRWEEP-1311	/				/			X
	CRWEEP-1316	/				/			X
	CRWEEP-1317	/				/			X
	CRWEEP-2213	/				/			X
	CRWEEP-3110	/				/			X
	CRWEEP-3301	/				/			X
	CRWEEP-3305	/				/			X
	CRWEEP-3410	/				/			X
	CRWEEP-3411	/				/			X
	CRWEEP-3412	/				/			X
	CRWEEP-3413	/				/			X
	CRWEEP-3507	/				/			X
	CRWEEP-3508	/				/			X
	CRWEEP-3602	/				/		1	
	CRWEEP-3609	/				/			X
	CRWEEP-3610	/				/			X
	CRWEEP-3804	/				/			X
	CRWEEP-3806	/				/			X
	CRWEEP-4200	/				/		1	
	CRWEEP-4307	/				/		1	
	CRWEEP-4310	/				/		1	
	CRWEEP-5101	/				/			X
	CRWEEP-5104	/				/		1	
	CRWEEP-5105	/				/			X
	CRWEEP-5107	/				/			X
	CRWEEP-5116	/				/			X
	CRWEEP-5119	/				/		1	
	CRWEEP-5120	/				/			X
	CRWEEP-5121	/				/			X
	CRWEEP-5131	/				/			X
	CRWEEP-5132	/				/			X
	CRWEEP-5133	/				/			X
	CRWEEP-5134	/				/			X
	CRWEEP-5135	/				/			X
	CRWEEP-5136	/				/			X
	CRWEEP-5137	/				/			X
	CRWEEP-5138	/				/			X
	CRWEEP-5139	/				/			X

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IDENTIFIERS		NASA			IOA RECOMMENDATIONS						
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C			OTHER (SEE LEGEND CODE)	ISSUE
	CRWEGP-5140	/				/					X
	CRWEGP-5141	/				/					X
	CRWEGP-5142	/				/			1		
	CRWEGP-5143	/				/					X
	CRWEGP-5144	/				/					X
	CRWEGP-5145	/				/					X
	CRWEGP-5146	/				/					X
	CRWEGP-5147	/				/			1		
	CRWEGP-5151	/				/					X
	CRWEGP-5159	/				/					X
	CRWEGP-5160	/				/					X
	CRWEGP-5169	/				/					X
	CRWEGP-5170	/				/					X
	CRWEGP-5174	/				/					X
	CRWEGP-5175	/				/					X
	CRWEGP-5176	/				/					X
	CRWEGP-5177	/				/					X
	CRWEGP-5181	/				/					X
	CRWEGP-5313	/				/					X
	CRWEGP-5315	/				/			1		
	CRWEGP-5319	/				/					X
	CRWEGP-6100	/				/					X
	CRWEGP-6101	/				/					X
	CRWEGP-6102	/				/					X
	CRWEGP-6103	/				/					X
	CRWEGP-6104	/				/					X
	CRWEGP-6105	/				/					X
	CRWEGP-6106	/				/					X
	CRWEGP-6107	/				/					X
	CRWEGP-6108	/				/					X
	CRWEGP-6109	/				/					X
	CRWEGP-6110	/				/					X
	CRWEGP-6111	/				/					X
	CRWEGP-6112	/				/					X
	CRWEGP-6113	/				/					X
	CRWEGP-6114	/				/					X
07-1-725101-1	CRWEGP-6511	3/1R	P	P	P	/					X
07-1-725101-2	CRWEGP-16512X	3/1R	P	P	P	/					
07-1-725101-3	CRWEGP-16513X	3/3				/					
	CRWEGP-6502	3/1R	P	P	P	/					X
	CRWEGP-6503	3/1R	P	P	P	/					X
	CRWEGP-6510	3/1R	P	P	P	/					X
07-1-725101-4	CRWEGP-6500	3/1R	P	P	P	/					X
07-1-725101-5	CRWEGP-6501	3/1R	P	P	P	/					X
07-1-725101-6	CRWEGP-6509	3/1R	P	P	P	/					X
07-1-725101-7	CRWEGP-6508	3/1R	P	P	P	/					X
07-1-725102-1	CRWEGP-6504	3/1R	P	P	P	/					X
	CRWEGP-6507	3/1R	P	P	P	/					X
07-1-725102-2	CRWEGP-6505	3/1R	P	P	P	/					X
07-1-725103-1	CRWEGP-6506	3/1R	P	P	P	/					X

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IDENTIFIERS		NASA			IDA RECOMMENDATIONS						
NASA	IDA	CRIT	SCREENS			CRIT	SCREENS			OTHER	ISSUE
FMEA NUMBER	ASSESSMENT NUMBER	HW/F	A	B	C	HW/F	A	B	C	(SEE LEGEND CODE)	
07-1-725103-4	CRWEGP-16514X	2/1R	P	P	P	/					
07-1-725103-5	CRWEGP-16515X	3/3				/					
07-1-725103-6	CRWEGP-16516X	3/1R	P	P	P	/					
07-1-725103-7	CRWEGP-16517X	2/1R	P	P	P	/					
07-1B-SW1-1	CRWEGP-2101	1/1				/					
	CRWEGP-2109	1/1				/					
07-1B-SW2-1	CRWEGP-2100	3/3				/					X
	CRWEGP-2102	3/3				/					
07-1B-SW3-1	CRWEGP-2103	2/1R	P	P	P	/					
07-1B-SW5-1	CRWEGP-2106	1/1				/					
	CRWEGP-2107	1/1				/					
	CRWEGP-2108	1/1				/					
07-1B-SW6-1	CRWEGP-2104	2/1R	P	P	P	/					
	CRWEGP-2105	2/1R	P	P	P	/					
07-1B-SW7-1	CRWEGP-12110X	3/3				/					
07-5-ML2-1	CRWEGP-4100	3/3				/					
	CRWEGP-4101	3/3				/					
1.1.1	CRWEGP-5180	3/3				/					X
1.1.2	CRWEGP-15182X	3/3				/					
1.1.3	CRWEGP-15183X	3/2R				/					
1.10.1	CRWEGP-15191X	3/3				/					
1.10.2	CRWEGP-15192X	3/3				/					
1.10.3	CRWEGP-15193X	3/2R				/					
1.11.1	CRWEGP-15194X	3/2R				/					
1.12.1	CRWEGP-15195X	3/3				/					
1.12.2	CRWEGP-15196X	3/2R				/					
1.13.1	CRWEGP-15197X	3/2R				/					
1.13.2	CRWEGP-15198X	3/2R				/					X
1.14.1	CRWEGP-5173	3/2R				/					X
1.14.2	CRWEGP-15199X	3/2R				/					
1.15.1	CRWEGP-5115	3/3				/					
1.15.2	CRWEGP-15200X	3/2R				/					
1.16.1	CRWEGP-15203X	3/2R				/					
1.2.1. 1.2.3	CRWEGP-5179	3/2R				/					
1.2.2	CRWEGP-5178	3/2R				/					X
1.3.1	CRWEGP-15184X	3/2R				/					
1.3.3	CRWEGP-5110	3/2R	P	P	P	/					
1.4.1	CRWEGP-5106	3/2R				/					X
1.4.2	CRWEGP-15185X	3/2R				/					
1.5.1	CRWEGP-5152	3/3				/					
1.5.2	CRWEGP-15186X	3/2R				/					
1.6.1	CRWEGP-5172	3/3				/					
1.6.2	CRWEGP-5171	3/3				/					
1.6.3	CRWEGP-15187X	3/2R				/					
1.7.1	CRWEGP-5166	3/2R				/					X
1.7.2	CRWEGP-5165	3/2R				/					X
1.7.3	CRWEGP-15188X	3/2R				/					
1.8.1	CRWEGP-5164	3/2R				/					X
1.8.2	CRWEGP-5163	3/3				/					
1.8.3	CRWEGP-15189X	3/2R				/					

# CRITICALITY OF OF POOR QUALITY

IDENTIFIERS		NASA			IOA RECOMMENDATIONS					ISSUE	
NASA	IOA	CRIT	SCREENS			CRIT	SCREENS				OTHER
FMEA NUMBER	ASSESSMENT NUMBER		HW/F	A	B		C	HW/F	A		B
1.9.1	CRWEP-5162	3/3				/					
1.9.2	CRWEP-5161	3/3				/					
1.9.3	CRWEP-15190X	3/2R				/					
2.1.1	CRWEP-5102	3/3				/					
2.1.2	CRWEP-5103	3/3				/					
2.1.3	CRWEP-15204X	3/3				/					
2.10.1	CRWEP-5112	3/3				/					
	CRWEP-5113	3/3				/					
2.10.2	CRWEP-5114	3/3				/					
2.10.3	CRWEP-15209X	3/3				/					
2.11.1	CRWEP-5130	3/3				/					
2.11.2	CRWEP-15209X	3/3				/					
2.12.1	CRWEP-5129	3/3				/					
2.12.2	CRWEP-5128	3/3				/					
2.12.3	CRWEP-15210X	3/2R				/					A
2.13.1	CRWEP-5108	3/3				/					
2.13.2	CRWEP-5109	3/3				/					
2.13.3	CRWEP-15211X	3/3				/					
2.14.1	CRWEP-15212X	3/2R				/					X
2.2.1	CRWEP-5117	3/3				/					
2.2.2	CRWEP-5118	3/3				/					
2.2.3	CRWEP-15205X	3/3				/					
2.3.1	CRWEP-5122	3/3				/					
2.3.2	CRWEP-5123	3/3				/					
2.3.3	CRWEP-15206X	3/3				/					
2.4.1	CRWEP-5154	3/2R				/					X
	CRWEP-5155	3/2R				/					X
2.4.2	CRWEP-5153	3/2R				/					X
	CRWEP-5156	3/2R				/					X
2.5.1	CRWEP-5167	3/3				/					
2.5.2	CRWEP-5168	3/3				/					
2.6.1	CRWEP-5157	3/3				/					
2.6.2	CRWEP-5158	3/3				/					
2.7.1	CRWEP-5150	3/3				/					
2.7.1, 2.7.2	CRWEP-5148	3/3				/					
2.7.2	CRWEP-5149	3/3				/					
2.8.1	CRWEP-5124	3/3				/					
	CRWEP-5125	3/3				/					
	CRWEP-5126	3/3				/					
2.8.2	CRWEP-5127	3/3				/					
2.9.1	CRWEP-5111	3/3				/					
2.9.2	CRWEP-15207X	3/3				/					
3-POINT LATCH 5A	CRWEP-3302	1/1				/					
3-POINT LATCH 5B	CRWEP-3300	1/1				/					
3-POINT LATCH 5E	CRWEP-3308	1/1				/					
3-POINT LATCH 5F	CRWEP-3307	1/1				/					
3-POINT LATCH 5G	CRWEP-13309X	3/3				/					
3-POINT LATCH TOOL	CRWEP-13310X	3/3				/					
CENTERLINE LATCH 4A	CRWEP-3202	1/1				1/1					
CENTERLINE LATCH 4B	CRWEP-3206	1/1				/					

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IDENTIFIERS		NASA			IDA RECOMMENDATIONS *					ISSUE
NASA	IDA	CRIT	SCREENS			CRIT	SCREENS			OTHER
FMEA NUMBER	ASSESSMENT NUMBER	HW/F	A	B	C	HW/F	A	B	C	(SEE LEGEND CODE)
CENTERLINE LATCH 4C	CRWEQP-3203	1/1			X	/				
CENTERLINE LATCH 4D	CRWEQP-3201	3/3				/				
	CRWEQP-3207	3/3				/				
	CRWEQP-3209	3/3				/				
CENTERLINE LATCH 4E	CRWEQP-3200	3/3				/				
	CRWEQP-3205	3/3				/				
CENTERLINE LATCH 4F	CRWEQP-3204	1/1				/				
CENTERLINE LATCH 5A	CRWEQP-3303	1/1				/				
CENTERLINE LATCH 5C	CRWEQP-3304	1/1				/				
CENTERLINE LATCH 5D	CRWEQP-3306	1/1				/				
CWDA-15A	CRWEQP-5400	3/3				3/2R	P	P	P	X
CWDA-15B	CRWEQP-5401	3/2R	P	P	P	/				
CWDA-15A	CRWEQP-5402	3/2R	P	P	P	/				
CWDA-17A	CRWEQP-15403X	3/2R	P	P	P	/				
CWDA-17B	CRWEQP-5400A	3/3				3/2R	P	P	P	X
EVA CABLE CUTTER 1A	CRWEQP-3700	3/2R	P	P	P	/				
EVA CABLE CUTTER 1B	CRWEQP-3702	3/2R	P	P	P	/				
EVA CABLE CUTTER 1C	CRWEQP-3701	3/2R	P	P	P	/				
EVA WINCH 2D	CRWEQP-3415	2/1R	P	P	P	/				
EVA WINCH 3A	CRWEQP-3400	2/1R	P	P	P	/				
EVA WINCH 3B	CRWEQP-3407	2/1R	P	P	P	/				
EVA WINCH 3C	CRWEQP-3406	2/1R	P	P	P	/				
	CRWEQP-3417	2/1R	P	P	P	/				
EVA WINCH 3E	CRWEQP-3403	2/1R	P	P	P	/				
	CRWEQP-3405	2/1R	P	P	P	/				
EVA WINCH 3F	CRWEQP-3402	2/1R	P	P	P	/				
	CRWEQP-3404	2/1R	P	P	P	/				
	CRWEQP-3409	2/1R	P	P	P	/				
EVA WINCH 3G	CRWEQP-3401	2/1R	P	P	P	/				
EVA WINCH 3H	CRWEQP-3414	2/1R	P	P	P	/				
EVA WINCH 3I	CRWEQP-3408	3/3				/				
EVA WINCH 3J	CRWEQP-13422X	3/3				/				
EVA WINCH 3K	CRWEQP-13420X	3/3				/				
EVA WINCH 3L	CRWEQP-13421X	3/3				/				
EVA WINCH 3M	CRWEQP-13419X	3/3				/				
EVA WINCH 3N	CRWEQP-13418X	3/3				/				
EVA WINCH 3O	CRWEQP-3416	2/1R	P	F	P	/				
IFM 1A	CRWEQP-4301	3/1R	P	P	P	/				
IFM 1B	CRWEQP-4300	3/1R	P	P	P	/				
IFM 2A	CRWEQP-4304	3/3				/				
IFM 2B	CRWEQP-4305	3/3				/				
IFM 2C	CRWEQP-4303	3/3				/				
IFM 2D	CRWEQP-4302	3/3				/				
IFM 3A	CRWEQP-4306	3/1R	P	P	P	/				
IFM 3B	CRWEQP-4309	3/1R	P	P	P	/				
IFM 3C	CRWEQP-4308	3/3				/				
IFM 4A	CRWEQP-4306A	3/1R	P	P	P	/				
IFM 4B	CRWEQP-4312	3/1R	P	P	P	/				
	CRWEQP-4313	3/1R	P	P	P	/				
IFM 4C	CRWEQP-4315	3/1R	P	P	P	/				

ORIGINAL DATA  
OF RECORD

IDENTIFIERS		NASA			IOA RECOMMENDATIONS					ISSUE
NASA	IOA	CRIT	SCREENS			CRIT	SCREENS			OTHER
FMEA NUMBER	ASSESSMENT NUMBER	HW/F	A	B	C	HW/F	A	B	C	(SEE LEGEND CODE)
IFM 4D	CRWEQP-4314	3/3				/				
IFM 4E	CRWEQP-4316	3/1R	P	P	P	/				
IFM 4F	CRWEQP-4317	3/3				/				
IFM 5A	CRWEQP-4311	3/3				/				
JSC17067-1A	CRWEQP-2205	1/1				/				
JSC170671B-1A	CRWEQP-2203	1/1				/				
JSC17067B-1A	CRWEQP-2200	1/1				/				
	CRWEQP-2201	1/1				3/3				X
	CRWEQP-2204	1/1				/				
	CRWEQP-2212	1/1				/				
JSC17067B-1B	CRWEQP-2206	3/3				/				
JSC17067B-1C	CRWEQP-12214X	3/3				/				
JSC17067B-1D	CRWEQP-2207	3/3				/				
	CRWEQP-2208	3/3				/				
	CRWEQP-2209	3/3				/				
	CRWEQP-2210	3/3				/				
	CRWEQP-2211	3/3				/				
JSC17067B-1E	CRWEQP-2202	3/3				/				
JSC17067B-2A	CRWEQP-2300	1/1				/				
	CRWEQP-2301	1/1				/				
	CRWEQP-2303	1/1				/				
	CRWEQP-2304	1/1				/				
	CRWEQP-2305	1/1				/				
	CRWEQP-2306	1/1				/				
JSC17067B-2B	CRWEQP-2302	3/3				/				
JSC17067B-2C	CRWEQP-2302A	3/3				/				
JSC22453-10A	CRWEQP-1209	3/3				/				
	CRWEQP-1210	3/3				/				
	CRWEQP-1211	3/3				/				
JSC22453-11A	CRWEQP-11221X	3/2R	P	P	P	/				
JSC22453-12A	CRWEQP-11222X	3/2R	P	P	P	/				
JSC22453-1A	CRWEQP-11215X	3/3				/				
JSC22453-2A	CRWEQP-11216X	1/1				/				
JSC22453-3A	CRWEQP-1212	3/2R	P	P	P	/				X
	CRWEQP-1213	3/2R	P	P	P	/				X
	CRWEQP-1214	3/2R	P	P	P	/				X
JSC22453-4A	CRWEQP-11217X	3/3				/				
JSC22453-5A	CRWEQP-11218X	3/2R	P	P	P	/				
	CRWEQP-1202	3/2R	P	P	P	/				X
JSC22453-6A	CRWEQP-11219X	3/2R	P	P	P	/				
JSC22453-6B	CRWEQP-11220X	3/2R	P	P	P	/				
JSC22453-7A	CRWEQP-1205	3/2R	P	P	P	/				X
JSC22453-8A	CRWEQP-1203	3/2R	P	P	P	/				X
JSC22453-8B	CRWEQP-1200	3/2R	P	P	P	/				X
	CRWEQP-1201	3/2R	P	P	P	/				X
	CRWEQP-1204	3/2R	P	P	P	/				X
JSC22453-9A	CRWEQP-1206	3/2R	P	P	P	/				X
	CRWEQP-1207	3/2R	P	P	P	/				X
	CRWEQP-1208	3/2R	P	P	P	/				X
JSC22480-10A	CRWEQP-1417	3/2R	P	P	P	/				

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IDENTIFIERS		NASA			IOA RECOMMENDATIONS					OTHER (SEE LEGEND CODE)	ISSUE
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C				
JSC22480-10B	CRWEQP-1418	3/2R	P	P	P	/					
JSC22480-11A	CRWEQP-1420	3/2R	P	P	P	/					
JSC22480-11B	CRWEQP-1421	3/2R	P	P	P	/					
JSC22480-12A	CRWEQP-1422	3/3				/					
JSC22480-13A	CRWEQP-1423	3/2R	P	P	P	/					
JSC22480-14A	CRWEQP-1424	3/2R	P	P	P	/					
JSC22480-15A	CRWEQP-1430	3/2R	P	P	P	/					
JSC22480-17A	CRWEQP-1431	3/2R	P	P	P	/					
	CRWEQP-1432	3/2R	P	P	P	/					
JSC22480-17B	CRWEQP-11433X	3/2R	P	P	P	/					
JSC22480-1A	CRWEQP-1400	3/2R	P	P	P	/					
JSC22480-2A	CRWEQP-1401	3/2R	P	P	P	/					
JSC22480-3A	CRWEQP-1402	3/3				/					
JSC22480-4A	CRWEQP-1403	3/2R	P	P	P	/					
JSC22480-4B	CRWEQP-1404	3/2R	P	P	P	/					
JSC22480-5A	CRWEQP-1410	3/2R	P	P	P	/					
JSC22480-6A	CRWEQP-1411	3/2R	P	P	P	/					
JSC22480-7A	CRWEQP-1412	3/2R	P	P	P	/					
JSC22480-7B	CRWEQP-1413	3/2R	P	P	P	/					
JSC22480-8A	CRWEQP-1414	3/2R	P	P	P	/					
JSC22480-8B	CRWEQP-1415	3/2R	P	P	P	/					
JSC22480-9A	CRWEQP-1416	3/2R	P	P	P	/					
OBS 1A	CRWEQP-1309	3/2R	P	NA	P	/					
OBS 1B	CRWEQP-1308	3/2R	P	NA	P	/					
	CRWEQP-1310	3/2R	P	NA	P	/					
OBS 2A	CRWEQP-1300	3/2R	P	NA	P	/					
	CRWEQP-1303	3/2R	P	NA	P	/					
	CRWEQP-1306	3/2R	P	NA	P	/					
OBS 2B	CRWEQP-11325X	3/2R	P	P	P	/					
OBS 2C	CRWEQP-1301	3/2R	P	NA	P	/					
OBS 2D	CRWEQP-11326X	3/2R	P	P	P	/					
OBS 3A	CRWEQP-1304	3/2R	P	NA	P	/					
	CRWEQP-1305	3/2R	P	NA	P	/					
	CRWEQP-1314	3/2R	P	NA	P	/					
	CRWEQP-1315	3/2R	P	NA	P	/					
	CRWEQP-1318	3/2R	P	NA	P	/					
	CRWEQP-1319	3/2R	P	NA	P	/					
	CRWEQP-1320	3/2R	P	NA	P	/					
OBS 3B	CRWEQP-11327X	3/2R	P	P	P	/					
OBS 4A	CRWEQP-1312	3/3				/					
OBS 4B	CRWEQP-1313	3/3				/					
OBS 5A	CRWEQP-1301A	3/3				/					X
OWDA-10A	CRWEQP-5300	3/2R	P	P	P	/					
	CRWEQP-5301	3/2R	P	P	P	/					
OWDA-10B	CRWEQP-15333X	3/2R	P	P	P	/					
OWDA-11A	CRWEQP-5311	3/2R	P	P	P	/					
OWDA-11B	CRWEQP-15334X	3/3				/					
OWDA-12A	CRWEQP-15335X	3/2R	P	P	P	/					
OWDA-13A	CRWEQP-15337X	3/2R	P	P	P	/					
OWDA-13B	CRWEQP-15338X	3/2R	P	P	P	/					



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IDENTIFIERS		NASA			IOA RECOMMENDATIONS					ISSUE	
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C				OTHER (SEE LEGEND CODE)
DWDA-14A	CRWEEP-5320	3/2R	P	P	P	/					
DWDA-2A	CRWEEP-15325X	3/2R	P	P	P	/					
DWDA-2B	CRWEEP-15326X	3/3				/					
DWDA-2C	CRWEEP-5312	3/2R	P	P	P	/					
DWDA-2D	CRWEEP-15327X	3/2R	P	P	P	/					
DWDA-2E	CRWEEP-15328X	3/3				/					
DWDA-3A	CRWEEP-5310	3/2R	P	P	P	/					
DWDA-3B	CRWEEP-5309	3/2R	P	P	P	/					
DWDA-3C	CRWEEP-15329X	3/3				3/2R	P	P	P		X
DWDA-4A	CRWEEP-15330X	3/3				/					
DWDA-4B	CRWEEP-5305	3/2R	P	P	P	/					
DWDA-4C	CRWEEP-5306	3/3				3/2R	P	P	P		X
DWDA-5A	CRWEEP-5307	3/2R	P	P	P	/					
DWDA-5B	CRWEEP-5308	3/2R	P	P	P	/					
DWDA-5C	CRWEEP-15331X	3/3				3/2R	P	P	P		X
DWDA-6A	CRWEEP-5302	3/2R	P	P	P	/					
DWDA-6B	CRWEEP-15336X	3/3				/					
	CRWEEP-5304	3/3				/					
DWDA-6C	CRWEEP-15332X	3/3				3/2R	P	P	P		X
DWDA-6D	CRWEEP-5303	3/2R	P	P	P	/					
DWDA-7A	CRWEEP-5314	3/3				/					
DWDA-8A	CRWEEP-5316	3/3				/					
	CRWEEP-5318	3/3				/					
DWDA-8B	CRWEEP-5317	3/3				/					
DWDA-9A	CRWEEP-5321	3/2R	P	P	P	/					
DWDA-9B	CRWEEP-5322	3/2R	P	P	P	/					
PIP PIN (1) A	CRWEEP-6200	3/1R	P	P	P	/					
PIP PIN (1) B	CRWEEP-6201	3/1R	P	P	P	/					
PRD-1A	CRWEEP-3606	1/1				/					
PRD-1B	CRWEEP-3606A	1/1				/					
PRD-2	CRWEEP-3601	1/1				/					
	CRWEEP-3616	1/1				/					
PRD-3A	CRWEEP-3603	3/3				3/1R	P	P	P		X
PRD-3B	CRWEEP-13621X	3/1R	P	P	P	/					
PRD-4A	CRWEEP-3611	3/1R	P	P	P	/					
PRD-5A	CRWEEP-3604	1/1				/					
	CRWEEP-3605	1/1				/					
	CRWEEP-3608	1/1				/					
	CRWEEP-3612	1/1				/					
	CRWEEP-3613	1/1				/					
	CRWEEP-3614	1/1				/					
PRD-5B	CRWEEP-3600	3/1R	P	P	P	3/1R					
	CRWEEP-3615	1/1				/					
PRD-6	CRWEEP-13620X	1/1				/					
PRD-7	CRWEEP-3607	3/3				/					
REF #1, 2, 3	CRWEEP-6300	3/3				/					
REF #4	CRWEEP-6301	3/3				/					
REF #5, 7, 8	CRWEEP-6303	3/3				3/3					
REF #6	CRWEEP-6302	3/3				/					
SNATCH BLOCK - 2B	CRWEEP-13609X	3/3				/					

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IDENTIFIERS		NASA			IOA RECOMMENDATIONS *					ISSUE	
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C				OTHER (SEE LEGEND CODE)
SNATCH BLOCK 2A	CRWEQP-3807	2/1R	P	P	P	/					
SNATCH BLOCK 2B	CRWEQP-13809X	2/1R	P	P	P	3/3					X
SNATCH BLOCK 2C	CRWEQP-3800	3/3				/					
SNATCH BLOCK 2D	CRWEQP-3802	3/3				/					
	CRWEQP-3803	3/3				/					
	CRWEQP-3803A	3/3				/					
SNATCH BLOCK 2E	CRWEQP-3802A	3/3				/					
SNATCH BLOCK 2F	CRWEQP-3801	2/1R	P	P	P	/					
SNATCH BLOCK 2G	CRWEQP-3805	2/1R	P	P	P	/					
TREADMILL 1A	CRWEQP-6408	2/1R	P	P	P	3/1R					X
TREADMILL 1B	CRWEQP-16409X	2/1R	P	P	P	3/1R					X
TREADMILL 2A	CRWEQP-6401	3/3				/					
TREADMILL 3A	CRWEQP-6403	3/3				/					
TREADMILL 4A	CRWEQP-6402	3/3				/					
TREADMILL 5A	CRWEQP-6404	3/3				/					
	CRWEQP-6406	3/3				/					
TREADMILL 6A	CRWEQP-6405	3/3				/					
TREADMILL 7A	CRWEQP-6407	3/3				/					
TREADMILL 8A	CRWEQP-16410X	3/3				/					
TREADMILL 9A	CRWEQP-6400	3/3				/					
TUBE CUTTER 6A	CRWEQP-3102	2/1R	P	P	P	/					
TUBE CUTTER 6B	CRWEQP-3111	2/1R	P	P	P	/					
	CRWEQP-3112	2/1R	P	P	P	/					
TUBE CUTTER 6C	CRWEQP-3106	3/1R	P	F	P	/					
TUBE CUTTER 6D	CRWEQP-3104	2/1R	P	P	P	/					
	CRWEQP-3105	2/1R	P	P	P	/					
TUBE CUTTER 6E	CRWEQP-3113	3/3				/					
TUBE CUTTER 6F	CRWEQP-3103	2/1R	P	P	P	/					
TUBE CUTTER 6G	CRWEQP-3100	2/1R	P	P	P	/					
TUBE CUTTER 6H	CRWEQP-13113X	2/1R	P	P	P	/					
TUBE CUTTER 6I	CRWEQP-3101	2/1R	P	P	P	/					
TUBE CUTTER 6J	CRWEQP-3107	3/1R	P	F	P	/					
TUBE CUTTER 6K	CRWEQP-3108	3/3				/					
TUBE CUTTER 6L	CRWEQP-3109	2/1R	P	P	P	/					
WINCH ADAPTER 1A	CRWEQP-3501	2/1R	P	P	P	/					
	CRWEQP-3505	2/1R	P	P	P	/					
	CRWEQP-3509	2/1R	P	P	P	/					
WINCH ADAPTER 1B	CRWEQP-3504	2/1R	P	P	P	/					
WINCH ADAPTER 1C	CRWEQP-3500	2/1R	P	P	P	/					
WINCH ADAPTER 1D	CRWEQP-3502	2/1R	P	P	P	/					
WINCH ADAPTER 1E	CRWEQP-3503	3/3				/					
WINCH ADAPTER 1F	CRWEQP-3503A	3/3				/					
WINCH ADAPTER 1G	CRWEQP-3506	2/1R	P	P	P	/					







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